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GAMIFICATION FOR KNOWLEDGE CREATION

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GAMIFICATION FOR KNOWLEDGE CREATION

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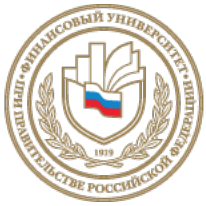

FINANCIAL UNIVERSITY
UNDER THE GOVERNMENT
OF THE RUSSIAN FEDERATION

Sponsoring Agency: Financial University under the Government of the Russian Federation

Submitted to:

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This report represents the work of three WPI undergraduate students submitted to the faculty as evidence of completion of a degree requirement. WPI routinely publishes these reports on its web site without editorial or peer review.

ABSTRACT

This project, sponsored by the Financial University under the Government of the Russian Federation, recommended ways to increase collaboration among researchers through the use of incentives. Using focus groups and interviews with faculty and students we identified the obstacles they face in their research, as well as the incentives that would motivate them to do more. Based on this we have proposed gamification techniques and incentives to strengthen the use of a new online research collaboration platform at Financial University.

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AUTHORSHIP

This report was written through the collaborative efforts of Junxiu Han, Christopher Navarro, and Justin Vitiello. Research for this project was done collaboratively; however, in order for the report to take form it was divided into several sections. Each section was authored by a team member, which was then later reviewed and edited by the others.

Section	***Authorship***
Title Page	Justin Vitiello
Abstract	Christopher Navarro
Acknowledgements	Junxiu Han
Authorship	Christopher Navarro
Table of Contents, Tables, and Figures	Junxiu Han
Executive Summary	Christopher Navarro
Introduction	Christopher Navarro
Background	Justin Vitiello
Methodology	Junxiu Han
Results and Analysis	Justin Vitiello
Conclusions and Recommendations	Junxiu Han
References	Justin Vitiello
Appendices	Christopher Navarro

Each section was reviewed and proofread by all team members to check for grammatical errors to ensure the quality of the final report.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

EXECUTIVE SUMMARY

The Financial University under the Government of the Russian Federation (FU) is one of the leading research centers in Russia and contains many branches located over many time zones (FU, 2015a). The university is an environment with opportunity for research collaboration; however, FU is performing below its potential. Our sponsor's goal is to improve both the quality and quantity of collaborative research produced at the university through the use of an online collaboration platform. However, in order to ensure the success of the online tool students and faculty must be motivated to use it. As a result, our project identified the obstacles researchers face within FU and discovered the incentives that would motivate them to perform better. These incentives would then be promoted through gamification techniques.

The objectives of this project were:

- *Identify the target audience for the use of the online platform.*
- *Identify the obstacles preventing researchers from collaborating on research.*
- *Identify the incentives needed to promote research collaboration.*
- *Identify gamification techniques and incentives to increase research collaboration and productivity.*
- *Propose how to determine effectiveness of suggested gamification techniques.*

Background

Online collaboration enables research teams to work asynchronously according to their own personal schedules (Klemm, 1997). Through online platforms users have the capability of creating, accessing, and editing files collaboratively. One platform, SharePoint, was originally used as a business collaboration platform (Noel & Spence, 2010), but has found use in an academic setting. SharePoint's powerful functions like intranet portals, file management, and social networks are all reasons why research centers have adapted its use. Although online tools are powerful they can come with disadvantages. If the tool proves inconvenient or too complex to the user it could be ignored rather than used (Jamali, 2014).

One way to improve the usage of these collaborative tools would be to provide incentives to use them, and, more specifically promote these incentives through gamification. Gamification

can be defined as using game-based mechanics to engage people and motivate action from them (Kapp, 2012). These game mechanics could include badges, achievements, or high scores: all features that make a game enticing. By introducing "game thinking" in tasks a depth of interaction is made, creating incentives that motivate people to complete tasks.

Methodology

In order to meet the objectives of the project our group needed to collect information from members of the university. We collected this information through

- *Preliminary meetings with our sponsor*
- *Focus groups with undergraduate students, Master's students, and university Professors*
- *An interview with our sponsor, the Dean of International Economic Relations*
- *An interview with university's IT Director*

Three FinLab research teams from WPI created all protocols for these methods collectively. Each of the six focus groups and two interviews had one representative from each team present. All protocols were created in a way that both gathered general information and specific information that was relevant to each project team. Our sponsor and Russian student counterparts helped set up the meeting dates and locations for each focus group and interview. They also assisted in any translation that was required to better understand the participants.

Results and Analysis

The results from our methods were divided into the following sections:

- *The target audience for the online platform*
- *The obstacles preventing researchers from collaborating on research*
- *The incentives needed to promote research collaboration*
- *Gamification techniques and incentives to increase research and collaboration*
- *SharePoint as a Gamification Platform*

FinLab teams found that SharePoint would be one option to meet our sponsor's goal for research collaboration. SharePoint has the capability to work with gamification tools to provide

research-based incentives and is already easily accessible within FU. We determined the obstacles preventing research and incentives that would promote these groups to do research. A majority of the groups expressed privacy concerns as a major obstacle, which made it difficult for them to find reliable partners, leading them to ultimately work individually. Incentives among all groups were consistent with one another. Monetary rewards, such as scholarships or research grants, and recognition for their work proved to be the leading incentives that would motivate the groups to do research. From this information we applied our knowledge of gamification techniques, such as badges and points, to identify potential ways to promote these incentives.

Conclusions and Recommendations

Our project's goal was to increase collaboration and research output within Financial University. Although we were unable to collect quantifiable data from a survey we had planned to distribute to all FU researchers, a cost-benefit analysis framework can still be used to describe the situation at FU. Currently, barriers or costs researchers face outweigh the benefits or incentives. To remedy this we recommend the continuation of the development of gamification techniques using the incentives identified through our focus groups. Our survey should still be carried out in order to collect quantifiable data from a much larger population at FU to support or contradict our results. We also recommend future testing of gamification techniques through the use of control groups to compare the differences between researchers who are exposed to these techniques and those who are not. By promoting and creating more incentives through gamification, such as recognition for researchers, the benefits for researchers should outweigh the costs of collaborating and producing quality papers.

1 INTRODUCTION

Collaboration is important when it comes to learning, understanding, and working together toward a common goal (Dooly, 2008). It is an essential part of good research because of its contributions and improvements in productivity and innovation (Park, Jeong, Yoon & Lee, 2014). Therefore, a lack of collaboration among researchers could have a negative effect on the output and quality of their research. With the development of new technology and related tools it is possible to connect researchers with one another; however, finding the right tools to do this is not necessarily easy.

The Financial University under the Government of the Russian Federation (FU) (2015a) is a strong believer in collaboration and believes it helps their researchers to produce good research. The University is one of the leading research centers within Russia, and it has a large network of academic branches that span both large distances and many time zones. FU has tried to create an environment with great potential for research collaboration; however, the university is performing below its potential, and the leaders at the university are not sure how to provide incentives to motivate researchers, as well as improve the quality and quantity of published research.

One option to create this motivation is by introducing gamification to provide incentives. Gamification by basic definition is the use of game mechanics in activities that normally would not have them (Cramer, 2014). According to Armstrong (2013), gamification taps into the motivational forces of a player and helps provide incentives that normally would not be there. The use of gamification in this incentive based approach has gained popularity within both business and educational spheres (Burke, 2014; Kapp, 2012). For example, one particular educational project, Lemon Tree, used the gamification concept in a library environment with students (Walsh, 2014). The project's goal was to increase the usage of the library's resources in hopes of increasing academic achievement, and it showed encouraging results. However, studies that pertain to the possible use of gamification in a research setting are still few in number and explored insubstantially.

FinLab, at the Financial University, wants to determine whether incentives promoted through gamification may be used to promote research collaboration. They hope to implement this concept within a large-scale collaborative network platform. Despite already having a platform, FinLab Wiki, created in 2014 by a previous WPI project group (Baumann, Farrar, and Gray, 2014), different solutions are being looked at. FinLab Wiki was intended to help solve the collaboration problem; however, it has seen little usage. FinLab's director is interested in increasing the usage of the wiki, or alternatively, switching away from it entirely to explore better options. But no matter what platform is identified to enable research collaboration, the challenge of motivating researchers to collaborate on research remains unsolved.

The goal of this project was to determine the most promising approaches to incentivizing researchers to collaborate. Our objectives focused on determining the obstacles that were preventing research and research collaboration as well as identifying the potential incentives that may promote it. By using a mix of focus groups and interviews we were able to determine what incentives could be used to motivate researchers at FU to collaborate, and how gamification could be used as an option to advertise and promote those incentives.

2 BACKGROUND

Despite the huge potential for research collaboration using Internet based tools, it is still difficult for researchers to work with each other across large distances and time zones. Online tools are one possible answer to this problem because they allow people who are not in the same location to work together instantaneously (Strickland, 2008). In this chapter, we will discuss the benefits of online collaboration and the different techniques that are currently in use at WPI and worldwide. We will discuss the usefulness of FinLab Wiki, an online collaboration tool developed to help promote collaboration among researchers at the Financial University (FU). Since the FinLab Wiki is experiencing underuse, we discuss what motivates people to participate in research and collaboration to help explain what may encourage researchers at FU to work together. We also explore gamification techniques as possible solutions to increase research collaboration.

2.1 Advantages and Disadvantages of Online Collaboration

Online collaboration enables research teams to work asynchronously by providing the capability of creating, accessing, and editing files according to their personalized schedules (Klemm, 1997). By using online collaboration tools, researchers have many of the benefits of face-to-face meetings that would normally be impossible. For example, since it is not always possible for researchers to have face-to-face communication, online collaboration can help reduce the cost and the time spent on transportation. In addition, according to Kim & Bonk (2002), online collaboration tools also provide a more equal environment for every participant. The lack of social cues and time pressure in an online platform allows researchers, especially foreign language users, to feel less pressure from other group members.

There are also some disadvantages of online collaboration. One disadvantage is that online tools can be too time-consuming to use (Jamali, Nicholas, Russell, & Watkinson, 2014). It takes time to set up a profile, to follow the researchers and groups a user is interested in, and to check in on the status of other partners. Another disadvantage identified by Jamali is that online

tools could create too much "noise." They could generate too many alerts, emails, and messages for users, and end up being ignored rather than acted upon.

2.2 Online Communication Techniques in the Academic Field

Online collaboration tools commonly exist within institutions or other academic environments. They allow people to access resources, share information, and collaborate on topics via the Internet. In this section we will cover ways in which collaboration is currently done at Worcester Polytechnic Institute (WPI) and other academic institutions around the world.

2.2.1 Collaboration at WPI

Although Worcester Polytechnic Institute (WPI) is not a university that has multiple satellite campuses across the nation, as is the case with Financial University, WPI researchers and students still use online tools to collaborate, such as Blackboard, SharePoint, Google Drive, Dropbox, Email, and Adobe Connect. WPI hosts their own instances of Blackboard, SharePoint, and Adobe Connect to be used by faculty and students free of charge.

WPI has adopted Blackboard as a main way to increase the communication among students and teachers. It allows teachers to set up virtual classrooms where assignments, lectures, and homework can be posted. It can also be used to enable communication among students via discussion boards and blogs. Within Blackboard students can post questions, and students enrolled in the same class are able to see these questions and can provide their answers, or a professor can answer. With this system there is a clear divide between the teacher, the one who manages the virtual classroom, and the students, who can participate in activities that the teacher has made available.

Other than using Blackboard for course-based collaboration, WPI also provides other ways to increase collaboration within research groups, such as SharePoint. SharePoint was originally used to provide a business collaboration platform for an enterprise via the Internet (Noel & Spence, 2010). Since SharePoint has gained a lot of recognition for its powerful functions like intranet portals, document and file management, collaboration, social networks, extranets, websites, enterprise search, and business intelligence, many companies and even research centers have begun to use it. WPI is one institution that has adopted it as a way to

connect people. Students and Faculty have the ability to request a SharePoint site for their group, where they can invite others to join and collaborate. All members can freely upload, track, edit and download documents and images. A history of edits made by different members can also be tracked or restored.

Adobe Connect (2015) is similar to SharePoint; however, it places more emphasis on online communication rather than document editing. According to Kats (2010), people can use it to do "... general presentations, online training materials, web conferencing, learning modules, and user desktop sharing in a 'live classroom' environment" (p. 84). When someone creates a theme, he/she can invite others to participate. Users can also customize the meeting rooms and can record both the audio and visuals of a meeting. PowerPoint slides can be shown and a virtual whiteboard can be used to take notes during the meeting.

Both SharePoint and Adobe Connect have received positive feedback from users for their powerful functions and convenience for the users. These powerful software systems can provide suggestions for how FinLab researchers could improve their collaboration.

2.2.2 Global Research Collaboration

The Internet itself can be considered one the largest collaborative tools in existence. It is global in scope and provides "... the world [with] a major channel for communication" (TFIA, 2015, p. 1). Many of online tools that have been developed specifically for collaboration depend on the Internet to function.

One of the best-known examples of online knowledge collaboration is Wikipedia - the first cyber encyclopedia (Bruns, 2008). It represents a major change compared to the traditional encyclopedia. "Anyone can edit" is its iconic slogan. Wikipedia allows information to be updated in a relatively short time and also makes a huge information pool accessible to anyone around the world. For almost every concept students learn in a university, an overview can be found on Wikipedia, in almost every language. The scope of this worldwide database of knowledge is also its greatest weakness. With such a large number of articles and people contributing, there is no way to validate and peer review everything that is put online. This

means that information that is posted to Wikipedia may not be accurate. Wikipedia is also only used as an online information-sharing platform, not to collaborate on individual documents.

Google Drive and Dropbox are two services that make online organizing, finding, sharing and storage of files possible (Google, 2015; Dropbox, 2015). Users of either service can upload a file and share it with anyone else on the Internet. Google Drive and Dropbox allow for real time collaboration on documents, spreadsheets, or slide shows. Users can also synchronize files with a PC, Mac, or mobile device. Google users can even create an online document by using Google Docs. Unfortunately, despite all the online communication these tools allow, it is difficult to integrate all three sources of information into one document. Based on the frequently used online tools, in **Table 2-1** we compare and contrast the different features among them.

Table 2-1: Comparison of Different Online Collaboration Tools

	Cost	Editability	Upload/Download File	Calendar	Personal site	Online Chat
Google Drive	Free	Yes	Yes	Yes	Yes	Yes
Dropbox	Free	Yes	Yes	No	Yes	No
SharePoint	Paid	Yes	Yes	Yes	Yes	Yes
Wikipedia	Free	Yes	No	No	No	No
Blackboard	Paid	Yes	Yes	Yes	Yes	No
Adobe Connect	Paid	Yes	Yes	Yes	Yes	Yes

2.3 Gamification

According to Karl Kapp (2012), gamification is defined as "using game-based mechanics, aesthetics and game thinking to engage people, motivate action, promote learning, and solve problems" (p. 10). "Game-based mechanics" involve any features that make a game enticing to play, such as points, badges, levels, or high score rankings. "Aesthetics" are what make a game look entertaining - the user interface. "Game thinking" is the competition or cooperation that exists within a game. It adds a depth that is interactive to the users and involves them in the game. Gamification combines these three aspects and uses them to create incentives and motivate people to complete tasks or participate in activities that are not considered a traditional game.

Despite being primarily used in online communities, gamification is not a new concept (Kapp, 2012). For example, old strategy games, such as chess or checkers, can help teach critical thinking through the use of competition with an opponent. More recently militaries around the world have been using gamification to recruit new members to their armed forces (Allen, 2014). The game *America's Army* is used by the United States Army to act as an "interactive commercial" (p. 180) to recruit for the army, This is just one example of how gamification has been shown to attract users; however, it could potentially be applied to many other fields, such as research collaboration.

2.3.1 Gamification Techniques

The most basic forms of gamification are point systems, badges and other rewards. A user completes a task and receives a reward. The reward may have no real world value but gives a sense of accomplishment to the user (Armstrong, 2013). Strong examples of these techniques are common in social media, such as the game Farmville on Facebook. As people grow their own personal farm, they are rewarded with abstract points (Playgen, 2012). These points create a sense of accomplishment that motivates users to participate more actively in Farmville and in return participate more actively on Facebook.

Deeper levels of gamification may include storytelling, explaining a broad purpose, or even a specific mission that needs to be accomplished. All of these strategies can be used to

increase participation. Elisa Mekler (2013) combined two factors, a point system and a meaningful purpose, to study their effects on subjects generating image annotation tags. The experiment was conducted by first having participants generate tags for images with no points displayed and no meaning given. Then participants were tested with each method individually, and then both together. The participants were informed, "their tags would help improve computerized affective image categorization and that their contribution would thereby advance science" (Mekler, 2013, p. 1139). The study concluded that both methods increased performance equally, but the combination of a quantitative measure (points) and a meaningful frame (advancing science) resulted in the highest quantity and quality tags.

2.3.2 Applications of Gamification

Gamification techniques can be used in any situation, from making a few people take the stairs instead of the elevator to convincing over 18 million people to buy into a service (Kim, 2015). In Sweden a piano staircase, which plays music when people step on a stair, was installed in a plaza; this made 66% more people take the stairs as opposed to escalators or elevators. A "Speed Camera Lottery Machine" was placed in a road to encourage people to observe the speed limit, and the average speed was reduced by 22%.

When used in marketing, gamification helps to motivate or provide incentives to the consumer, resulting in more effective marketing strategies. One example is Nike plus, which tracks users' movements such as running or other exercise and quantifies it into 'fuel', which is tracked online (Cramer, 2014; Nike Inc., 2015). Nike plus uses fuel points to rate users against themselves and their peers. Users can see how active they are and can challenge friends to be more active. By giving exercise a numerical value, Nike motivated consumers to exercise more, and in turn buy more Nike products.

Gamification has also been used in education to increase student engagement and learning. One such attempt is the Lemontree system, detailed by Walsh (2014), used to increase the use of library resources. The system tracks students' use of the library and awards them points and badges based on checking out books, using online resources, and other activities in the library. The goal is to make using the library a more playful and fun activity. This was a

largely successful implementation, with the majority of students, 60%, responding that Lemontree increased their library resource usage. Lemontree is still being used with success today.

Gamification has been shown to be effective at motivating people to participate in non-game activities (Burke, 2014; Kapp, 2012). Although it is easy to see how it works, it is also easy to implement it improperly. Andrew Walsh (2014) points out that a key point of gamification is that it cannot be mandatory. Once it becomes a required task, the user no longer sees it as 'fun', and usage will drop. To be effective gamification requires a careful balance between pushing people to participate while still being a voluntary choice that the user makes. Whether gamification can be properly used within the Financial University to promote research collaboration is an open question.

2.3.3 Cost-benefit Analysis to Measure Gamification

To analyze the effectiveness that gamification can bring a cost-benefit analysis framework can be used. Cost-benefit analysis is traditionally used to analyze the effect a project has on the community (Watkins, 2008). The costs and benefits are tallied from all possible interactions that a project will influence and given a common currency in which they can be compared. The total costs, or any downsides that the project has, are compared to the benefits, or any positive aspect a project brings. This is a simple way to evaluate if a potential project is worthwhile. Because the effectiveness of gamification techniques may be hard to measure this framework could be used to give the benefits of gamification a tangible value. The work necessary to implement and continue use of gamification can be compared to the change in quality and quantity of research output, and the Financial University can determine if gamification is a worthwhile effort.

2.4 The FinLab Wiki

The International Financial Laboratory within the Financial University currently uses a website developed by a 2014 research team from WPI called the FinLab Wiki (Baumann, Farrar, and Gray, 2014). This wiki is supposed to be used by students and researchers to collaborate on

research projects across all of the Financial University campuses scattered throughout Russia. Unlike Wikipedia, where anyone is allowed to view and edit articles, the FinLab Wiki is restricted to students and faculty who have approved access. Tickets and keywords are the main features of the wiki. Keywords are chosen by the user and represent the particular research interests of that person. Tickets are proposals for new research projects that are started by users. Keywords can be added to tickets to make them easy to find based on their subject and field. Users can join tickets to show interest in the project. Once a supervisor views a ticket, it can be turned into a project, which means it is ready for students or faculty to begin researching and collecting data. Through this online information sharing website, all researchers who work on the same topic should be able to be closely connected with one another.

The FinLab Wiki was well received when it was first introduced, but according to Professor Didenko (2015), dean of the International Economic Relations faculty and sponsor of the FinLab Wiki, the Financial Laboratory is experiencing the problem of "free riders", where users of the wiki will appear to participate but will not make meaningful contributions. Some users will begin to work on a ticket but are involved in name only and not actively participating in the research. Most Russian students are knowledgeable about the area they are researching but are not regularly exposed to the real-world experience and problem solving skills that are required for completing a research project (Baumann, Farrar, and Gray, 2014). Our sponsor believes that to solve the free rider problem and motivate both students and faculty to participate in research collaboratively will require better incentives.

2.5 Summary

Online collaboration can be beneficial by making it easier to carry out research as well as improve its quality. The Financial University wants to leverage these benefits by promoting more collaboration among researchers both within and outside of the University. An online collaboration tool called FinLab Wiki was put in place in 2014 to help foster collaboration, but it has not been widely utilized. Gamification has proven to be a viable method for motivating people to get involved in activities, as seen in business strategies and in education, yet there has been no research on the effectiveness of introducing gamification techniques and other types of

incentives into a research collaboration context. In the next chapter we will discuss how we went about finding a solution to the challenge of motivating researchers to become more active and productive collaborators.

3 METHODOLOGY

The goal of our project was to determine how to enhance research collaboration among researchers within the Financial University (FU) through the use of incentives promoted through gamification as part of a set of online collaboration tools. We focused on identifying if gamification techniques could promote incentives to improve collaboration among the researchers at FU. In order to achieve our goal we developed the following research objectives:

- *Identify the target audience for the use of the collaboration platform.*
- *Identify the obstacles preventing researchers from collaborating on research.*
- *Identify the incentives needed to promote research collaboration.*
- *Identify gamification techniques and incentives to increase research collaboration and productivity.*
- *Propose how to determine effectiveness of suggested gamification techniques.*

In this chapter, we will explain the research methods we used to achieve our objectives.

3.1 Identify the Target Audience

In order to promote research collaboration we first needed to **identify the target audience**. We held a meeting with our Russian advisors to identify the current and potential users of FinLab Wiki and other collaboration platform tools. Each group of researchers that was identified would have different research incentives unique to themselves. These different target groups were taken into account in completing the rest of our research methods.

3.2 Identify the Obstacles and Incentives for Research Collaboration

In order to **identify the obstacles and incentives for research collaboration** among students and faculty members in FU, we used several methods to help us collect important information about incentives and obstacles. First, we held focus groups to collect in-depth information from researchers and students. Based on this information we developed a large-scale survey to help gather university-wide opinions on research collaboration. We also held semi-structured interviews with the IT department head and our sponsor, the Head of Research and Development Planning at FU. These interviews allowed our group to have a better understanding of

the Financial University IT network and possible incentives that the University could offer to researchers.

Via these methods we discovered the major obstacles to research collaboration and specific problems that the Financial University had encountered, as well as incentives for research collaboration**.** Incentives were important for our project, because they helped us to understand what motivates people to conduct research at FU.

3.2.1 Focus Groups

We conducted 6 focus groups in conjunction with the other two FinLab research teams in order to gather generalized information for our project. The groups were organized based on the position the participants held within the university in order to get their different viewpoints. Our sponsor and a team of FU sociologists helped us to select these participants. We were able to host six focus groups with the following:

- International Economic Relations (IER) undergraduate students
- International Financial Faculty (IFF) undergraduate students
- Master's students
- Professors who actively do research at FU
- Undergraduate sociology majors
- Young Scientist Council representatives

Each focus group had up to 6 participants from FU and was conducted by representatives from each FinLab team. One student from WPI served as moderator, while the other two took notes. A Russian student was also present to assist in translation. Using our focus group protocol **(**see **Appendix B)** we asked the participants what methods or tools they have used or might use to collaborate on research. The participants were also asked to explain their personal motivations for conducting research. The participants were invited to meet in a conference room, Bloomberg Lab, where the discussion could be moderated. Notes were taken on the key points in order to accurately represent the opinions voiced. Participants expressed their unique answers related to their own experience, which helped provide insights on how to enhance the collaboration among researchers at FU. From these focus groups our team was able to determine both obstacles and incentives the

different groups of participants experienced in research. At the end of each focus group we collected the participants contact information, if possible, for follow-up. All names collected during these focus groups were kept anonymous, and only the participants position within the university was used in our report.

3.2.2 Large-scale Survey

The three FinLab teams from Worcester Polytechnic Institute in collaboration with sociology students and other faculty members from FU jointly created a survey questionnaire. Our Russian partners assisted in translating the questionnaire into Russian after the English survey protocol was developed **(**see **Appendix M)**. Afterwards the survey was created in Qualtrics, an online survey software. The survey was a mix of multiple choice and scale-based questions that were sourced from the information gathered by previously held focus groups and discussions with our sponsor and Russian counterparts. Each multiple-choice question had an additional 'Other' option. This option was for participants to write down answers for which we did not provide an appropriate choice that suited their situations. The survey also collected demographic information about the respondent's position within the university.

Three different FinLab teams were involved in conducting the survey together, since the questionnaire included several specific questions that pertained to each team's focus. Our group targeted important incentives and obstacles that FU researchers have faced. In order to gather information from as many students and faculty as possible, the online survey was to be sent by email through the Dean's Office. However, there was a miscommunication, which caused our survey to be sent incorrectly. This made it impossible to distinguish between valid and invalid responses. Our team did not have enough time to correctly send a second survey.

3.2.3 Semi-structured Interviews

To complement our focus groups interviews were conducted with our sponsor, the Dean of International Economic Relations, and the director of IT at the Financial University. We used semi-structured interviews **(**see **Appendices J and L)** to help focus the interview on our topic, while still allowing the interviewee to supply relevant information we were not aware of. The interview with

our sponsor was used to gather information about his views on FinLab Wiki, as well as what incentives he believed could be offered to researchers at FU. The interview with the director of IT was used to gather information about FU's IT organization and internal infrastructure. We also asked the IT director his opinions on all three WPI team's' proposal to use SharePoint as the online platform for enabling and promoting research collaboration, and if he had any other information that could aid us in our project.

The interviews were conducted with two interviewers from the FinLab project groups. One WPI student led the interview while the other took notes.

3.3 Identify Gamification Techniques to Improve Research Collaboration

Our group focused on identifying gamification techniques that could be used to promote incentives to **increase research collaboration and productivity**. To accomplish this objective we used our prior knowledge of gamification, based on previous research, to identify techniques. These techniques used existing gamification principles that could promote the incentives our group had identified during the focus groups. With this in mind we determined what incentives could be offered and what gamification techniques could be used to implement them in a way that would be attractive to potential users.

3.4 Propose Guidelines to Test Effectiveness of Gamification Techniques

Once the chosen gamification techniques have been implemented and are in use, their performance must be measured. Due to our time constraints and lack of resources our group was unable to implement and test these techniques ourselves. Instead, after consulting our project advisors it was determined our group would **propose guidelines to test the effectiveness of gamification techniques**. Using our previous background research and the advice of our project advisors we established guidelines to measure the effectiveness of gamification. These guidelines could be used by Financial University to determine if incentives promoted through gamification had the intended effect of increasing research collaboration.

3.5 Summary

The methods described above helped us to achieve our goal of determining how incentives promoted by gamification could enhance research collaboration and output among FU researchers. Through our focus groups and interviews, we identified the incentives and obstacles researchers face when conducting research at Financial University. This information, along with prior background research, was used to identify potential gamification techniques that could be used to promote these incentives. In the next chapter we will present our findings.

4 RESULTS AND ANALYSIS

The goal of this project was to determine what incentives could be used to increase collaboration and research output within the Financial University under the Government of the Russian Federation (FU). In this chapter we will present the results of our research. We have organized our findings into the following topics based on our research objectives:

- *The target audience for the online platform*
- *The obstacles preventing researchers from collaborating on research*
- *The incentives needed to promote research collaboration*
- *Gamification techniques and incentives to increase research and collaboration*
- *SharePoint as a Gamification Platform*

4.1 Current Situation at FU

As mentioned before, FinLab Wiki was created to increase cooperation at Financial University by providing a collaborative research space for students and professors. It provided a platform where researchers could share their results and build on each other's findings, therefore promoting a higher quality of research output. Through interviews with our sponsor and the Director of IT at FU, as well as focus groups held with various professors and students, we discovered FinLab Wiki was not being used.

Another research team has come to the conclusion that the best option for FU is to move from the FinLab Wiki to Microsoft SharePoint. This platform is much more capable of being a collaboration platform with all of the features desired by our sponsor. The Financial University already subscribes to Office 365, which provides the school with SharePoint as well as Yammer, a private social network. Using these tools FinLab Wiki could be replaced, but development still needs to be done by the Financial University IT department.

4.1.1 Incentives and Obstacles in FinLab Wiki

Although considered a successful product, as it satisfied its original goal **(Appendix J),** FinLab Wiki still had a very low use rate. We believe a large part of this was due to the lack of incentives to use it as well as the obstacles posed to those who did try to use it.

Our sponsor advertised the wiki to students and professors, but there was no reason to start using it beyond this advertisement. Professors could not see any benefits that the wiki would provide to them or their students, and students, with no pressure from professors, had no reason to change from their existing research methods.

FinLab wiki suffered from many obstacles that prevented students and professors from using it. The largest was that it was confusing and difficult to use. Editing a page required knowledge of the PHP programming language, which is uncommon amongst users. Another large issue was the privacy of materials on the wiki. A user who had access to the wiki would have access to view and edit any content on it whether it was their work or not. The risk of a researcher's work being edited or taken without their knowledge was cited as a major reason for not using the wiki (see **Appendix H**).

4.2 Identify the Target Audience for the use of the Online Platform

Through preliminary meetings with our sponsor and Russian counterparts, our group discovered the target audience to be all students and faculty at the Financial University. The audience included undergraduates, Master's students, and faculty. Our sponsor explained that each of these groups within the Financial University should have a use for the platform since research is a large part of FU, and our sponsor is working to promote collaboration to achieve quality research output.

4.3 Obstacles Preventing Research and Collaboration

Via focus groups with undergraduate students, master students, and professors **(see Appendices C-H)**, our group discovered many of the obstacles that hinder research collaboration and production. In **Figure 4-1** we have summarized the major obstacles faced by undergraduate students, masters students, and professors.

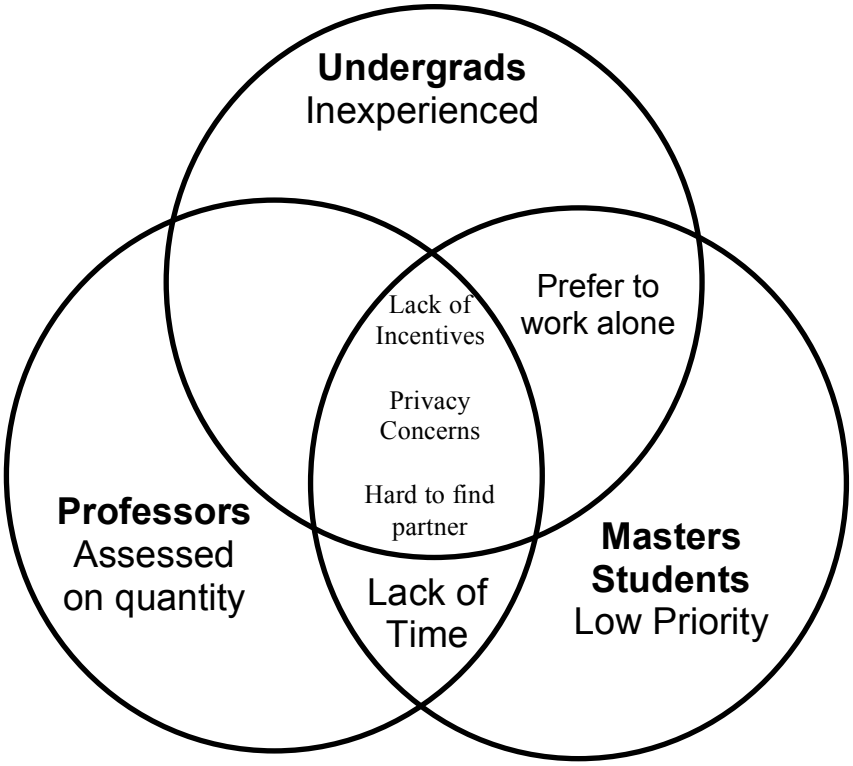

Figure 4-1: Obstacles to Research

4.3.1 Obstacles Preventing Research Production

Before the lack of research collaboration can be addressed, the obstacles preventing general research must first be understood. The undergraduate population voiced the greatest number of obstacles to carrying out research, largely due to their inexperience with doing research and publishing it. This inexperience stems from most professors not encouraging research in the courses they teach. When there is no requirement imposed by a professor to conduct research, students do not see a reason to use their free time to carry out research and write research papers.

When students do begin to work on research papers, many easily give up when they encounter problems **(see Appendix J)**. Because they are inexperienced, they do not know the difficulties that writing a research paper can entail. They are usually not informed about the process on which research papers are based and professors do not have the time to dedicate themselves to helping every student who encounters a problem when trying to carry out research.

Professors in one focus group **(see Appendix E)** explained the progression of research that students at the Financial University experience. When students enter their first year at the university they have no research experience, so most of that year is dedicated to instruction and teaching how to do research, not in actually doing it. Second year students have a preliminary background in research but still do not have enough experience to be considered good researchers. Third and fourth year students tend to be the best at doing research, but they have less time to complete research activities due to graduation and other commitments. Students are never given adequate opportunity to do research as a core part of the curriculum, and so there are very few incentives for them to pursue independent research.

If an undergraduate student has written a research paper, the next obstacle is getting it published. Many students were unaware as to where one would publish a paper, and others were confused about the process to the point that they decided it was not worth the effort to publish their research results. They talked about the lack of resources available, and how there was no real 'standard' way to go about having their work published. Instead this process was left entirely up to the student, resulting in virtually no undergraduate research being published.

Masters students had fewer obstacles than undergraduates, as they had more experience with research and collaboration. However, the few obstacles they explicitly stated revolved around the time commitment and usefulness of conducting research. Many saw writing research papers, beyond the few required for their courses, as something that was taking time away from other schoolwork or searching for a job.

Professors had the fewest obstacles to getting their research published, as they had the most experience and strongest reasons to get research published. The largest obstacle was again time commitment. Professors prioritize classroom instruction over research, as that is their main role at the University. Professors are also required by the Russian government to produce a certain number of publications in order to maintain funding and keep their position within the university. This has led to another problem, the low quality of research being published. Because professors are assessed on the number of their publications and not their quality, there is no reason to take time away from teaching and spend it on writing a quality research paper when

almost any article would be published somewhere, as long as the researcher paid to have it published.

There is a cultural difference in the nature of publishing between Russian academics and the Western world, which was described by our sponsor as 'Reporting versus Publishing Culture'. In Russia there is a reporting culture for academic writing, where researchers will publish reports on conferences they attended or works that they had read. Many of the articles are merely summaries with the researcher's personal ideas and opinions, without any actual research being conducted. These would be five to ten pages long as opposed to the more lengthy publications in Western academic journals. Publishing culture refers to the type of publications that would appear in Western journals. These publications are much longer and have the background information that would appear in a Russian article but would also contain research that was conducted to achieve an objective. Many Russian professors publish a large number of these smaller reports, which are of a lower quality and would likely be rejected by peer-reviewed journals.

4.3.2 Obstacles Preventing Collaboration

In addition to the obstacles preventing people from conducting research, we also looked into the obstacles preventing collaboration at the Financial University. A large problem we found that was present at every level was that people are wary of working in a group, largely because they are afraid their research partner would steal their work. Students and professors alike feared that a partner would be the first to publish a group's work, and that person would try to take all the credit without acknowledging collaborators. This was a problem that was made worse with FinLab Wiki. Professors (see **Appendix H**) who had experience using it did not like the openness of the Wiki, where pages could be seen and edited by anyone with an account, regardless of the status or members of the project. Users would rather have privacy control, such as private research areas accessible to only their group members, and the possibility to make a paper viewable, but classified as "read only", once it was ready to be published.

Undergraduate students also expressed difficulty in coordinating with other members of their groups, which led to group members working on their own sections and assembling them at the end of the project, rather than collaborating on the project together.

A problem that was expressed by all groups was the difficulty in finding new partners to work with. Most of the time when groups are formed, students and professors form groups with people that they already know. This makes it easy to form groups, but these groups may not be the best set of people to work on a particular research task. Many of the researchers at FU will go through their own personal networks of colleagues before contacting someone new, if at all. They would rather go with a known, trusted collaborator than an unknown individual. However, this way of locating research partners causes personal networks to grow slowly, if at all.

4.4 Identify the Incentives Needed to Promote Research Collaboration

To overcome the obstacles facing research and collaboration we discovered the incentives that already existed at the Financial University, as well as new incentives which undergraduates, master's students, and professors saw as being useful for encouraging research and research collaboration.

4.4.1 Existing Incentives

Our research not only discovered the existing obstacles to research, but also the incentives that different groups have to conduct research. All groups that we spoke with expressed a common incentive of monetary benefits. Undergraduates and masters students expressed an interest in qualifying for scholarships that would help offset the cost of attending the university. Professors were interested in getting research grants to cover the cost of carrying out research that was not already paid for by the Russian government.

Specifically for undergraduates, the incentives that they already had for conducting research were the possibility of earning scholarships, getting good grades from a professor, and qualifying for study abroad opportunities. Some students expressed an interest in studying abroad and said that having good documentation of their research work was an important part of the application and decision making process.

4.4.2 New Incentives

In addition to the incentives that already exist at the Financial University to encourage research, we also identified new incentives to overcome the obstacles to research that researchers had presented and new ideas that they thought would work. Many of these ideas revolve around bringing more competition to the process of doing research and collaborating on research.

In **Table 4-1,** we summarize existing and potential incentives available to professors and students.

Table 4-1: Incentives for doing Research

Incentive category	**Types of Incentives**	**Existing Examples**		**Potential Examples**	
		Students	**Professors**	**Students**	**Professors**
Explicit	*Economic*	Limited scholarships	Increases in salary and research funding	Scholarships	More Funding for Research
	Future developments		Promotions	Study abroad opportunities	
	Academic Requirement	Degree requirements; Thesis at end of degree	Obliged to publish regularly	Grades for individual courses	Ranked on quality not quantity
Implicit	*Recognition*	Make connections with professors		Job/internship opportunities	Raised status as excellent researcher
	Personal Satisfaction	Get more knowledge and skills Gain Research experience	Get more knowledge and skills Gain Research experience	University Awards	University Awards

4.5 Identify Potential Gamification Techniques

Through our previous research and discussions with various members of the Financial University we have identified simple gamification techniques that could be implemented by FU to potentially increase research collaboration. There are two categories of techniques and incentives discussed: those that exist entirely within the online platform, and those that involve participation or incentives outside of the platform.

4.5.1 Techniques within the Online Platform

The techniques used within the online platform are all virtual rewards, but still provide motivation to users.

The first and simplest technique is to give users points, badges, and levels based on the research tasks they have completed. Users would write and collaborate on research papers within the platform, and for every paper that is marked as 'finished' within the system a set number of points would be awarded to those who collaborated on the paper. These points would be tracked within the system for every user and would allow he/she to advance through levels. Points and levels would be tracked publicly on leaderboards, where users would be compared to each other throughout the entire university and within their faculty based on how many points they have.

Another technique is to add a progress bar for each user as well as for entire research projects. There would be separate progress bars for research projects and for users. The project progress bar would track the total completion of a project, and the individual progress bar would track a user's completed tasks across all projects they are working on. This provides direct competition between users, as well as allowing them to see the progress of entire projects. The progress bars would display the percentage of work completed, so that the details of a project would remain private. This allows for the privacy that many users were concerned about while still allowing others to see a user's contribution to a project.

With these techniques, the problem of quantity versus quality still exists. To combat this, more points would be awarded based on the quality of the work. Quality is a difficult criterion to measure, but one method is to track how often a published work is cited. A better paper would be cited more often, so for each additional citation of a work, the author would receive more points.

A system of peer reviewing will also improve the quality of papers being published. Each paper would have a metric for how many peers have viewed the paper and approved it of being a high quality scientific work. Reviewers would also earn points for doing these reviews, which would be counted separately from the points earned from participating in research activity. Papers would be made anonymous before being available for peer review, to eliminate possible biases that could form if the reviewer knows the reviewee. This is not a perfect peer review system, as it is traditionally not appropriate to have colleagues from the same university peer review a paper, but it is a starting point for a publishing system that is severely lacking in peer reviewed work.

To promote the idea of collaboration, users would be able to earn additional badges exclusive to tasks involving collaboration, such as a badge for forming or joining a group. These badges would not affect a researcher's point count or standing within the platform. Instead, these badges would represent a user's accomplishments within collaborative projects that could be used to promote themselves to other users. Since these badges wouldn't earn a user any tangible reward they would encourage people to work in a group, while not discriminating against individual researchers.

Because points constantly track all activity in the online platform, heads of faculties and other officials at Financial University would be able to measure the activity of researchers and students at any point in the year, instead of the annual reports that are submitted currently.

4.5.2 Techniques External to the Online Platform

External techniques can be used in conjunction with the in-platform points to provide tangible rewards to users of the platform. These rewards could be scholarships, research grants, sponsored publications, or any other tangible rewards that are desired by users and possible for the Financial University to supply.

These rewards, if FU has the ability to implement them, would be tied to the system that exists within the platform. Students would submit their papers to compete within FU to earn scholarships. High-ranking papers could potentially be published in major journals free of charge

to the student on behalf of the University. Employers could have access to the database of published papers to search for promising students based on their research ranking.

Professors could have the opportunity for additional research grants if their work within the platform shows that they are deserving of additional funding. There could be grants for individual work, but the largest grants will be reserved for research projects that have multiple active collaborators. The recipients would be determined by deans of the university, preferably those who supervise research but who aren't direct stakeholders in who wins, to try to eliminate as much bias as possible.

Awards that aren't tied to grants or scholarships could also be given out by FU. By tracking the leaderboards within the platform, recognition awards can be awarded to the top research team of the year and the top research team within each faculty. These awards could be published on the university's website so that others can see these achievements.

These external techniques add a real-world component to the platform, providing motivation for users to strive for these higher value rewards.

4.6 Gamification within SharePoint

Multiple companies provide products to integrate gamification techniques within SharePoint. Two of these companies are Badgeville and RedCritter (Badgeville, 2014; Lambert, 2014). These companies have created programs and services that provide a framework for other companies to integrate gamification within their own SharePoint sites. Badgeville offers their services on a per-month basis charging approximately $3000-$5000 a month, while RedCritter offers theirs for $30-$500 a month (Redcritter, 2015). However, cheaper alternatives exist within the SharePoint store. One example, Trophy Cabinet, can add a basic badge and point system for a payment of only $3 (SharePointEdu, 2015).

These products were designed for gamification within an enterprise environment, but could be adapted as a research and collaboration aid within FU. These services provide the functionality and framework for gamification within SharePoint, but not the unique content and incentives a company would populate it with. This means that a company can use the tools to easily create badges and other gamification tools to track a user's points. These tools help

eliminate a lot of the development that would otherwise be necessary to implement these features.

We have created a mockup of what gamification within SharePoint could look like (**Figures 4-2 & 4-3**). This mockup shows a user page, where a user of the system would see what achievements they have earned, how many points they have, and their ranking within the Financial university as well as within their faculty.

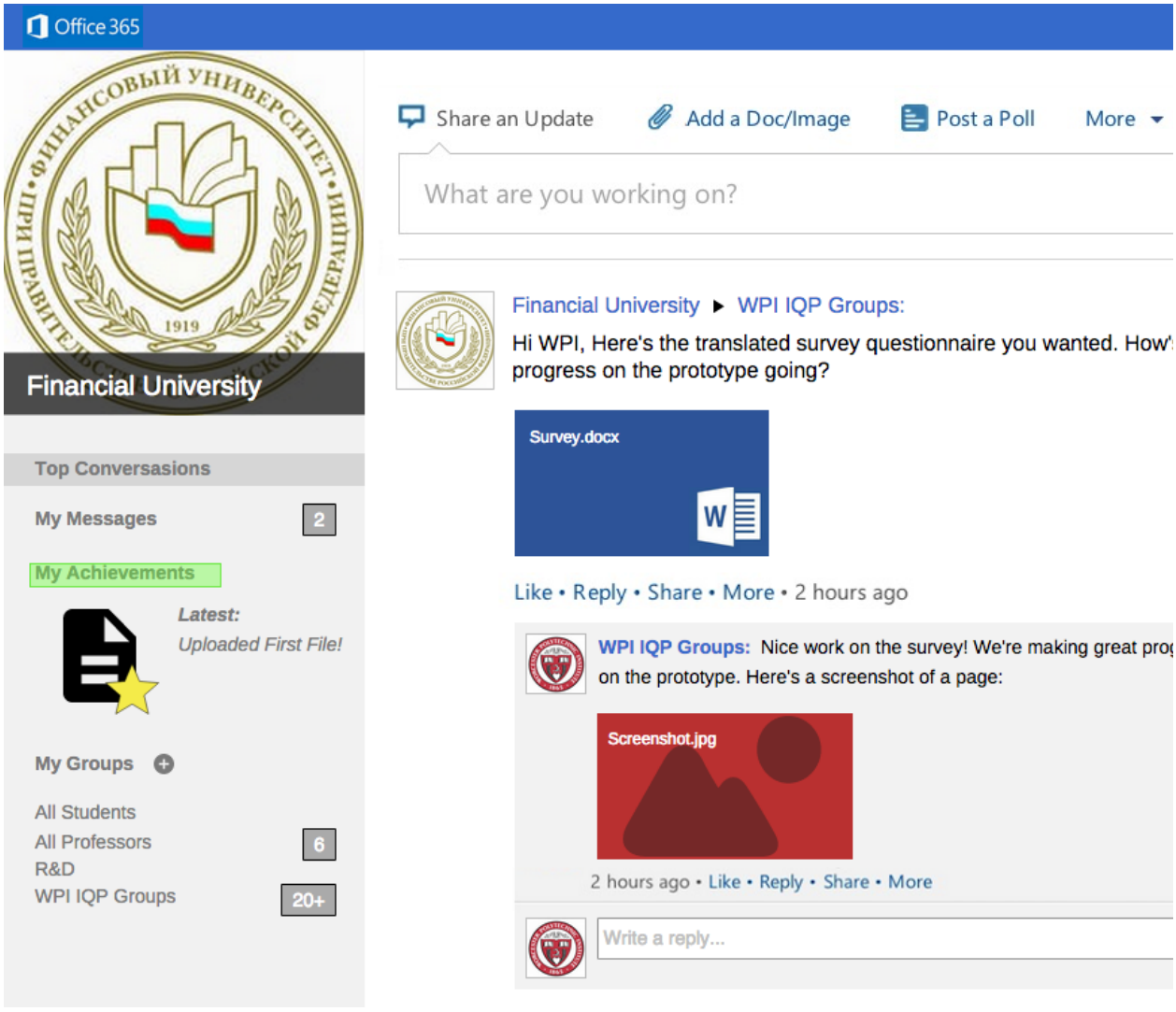

Figure 4-2: User Page Mockup

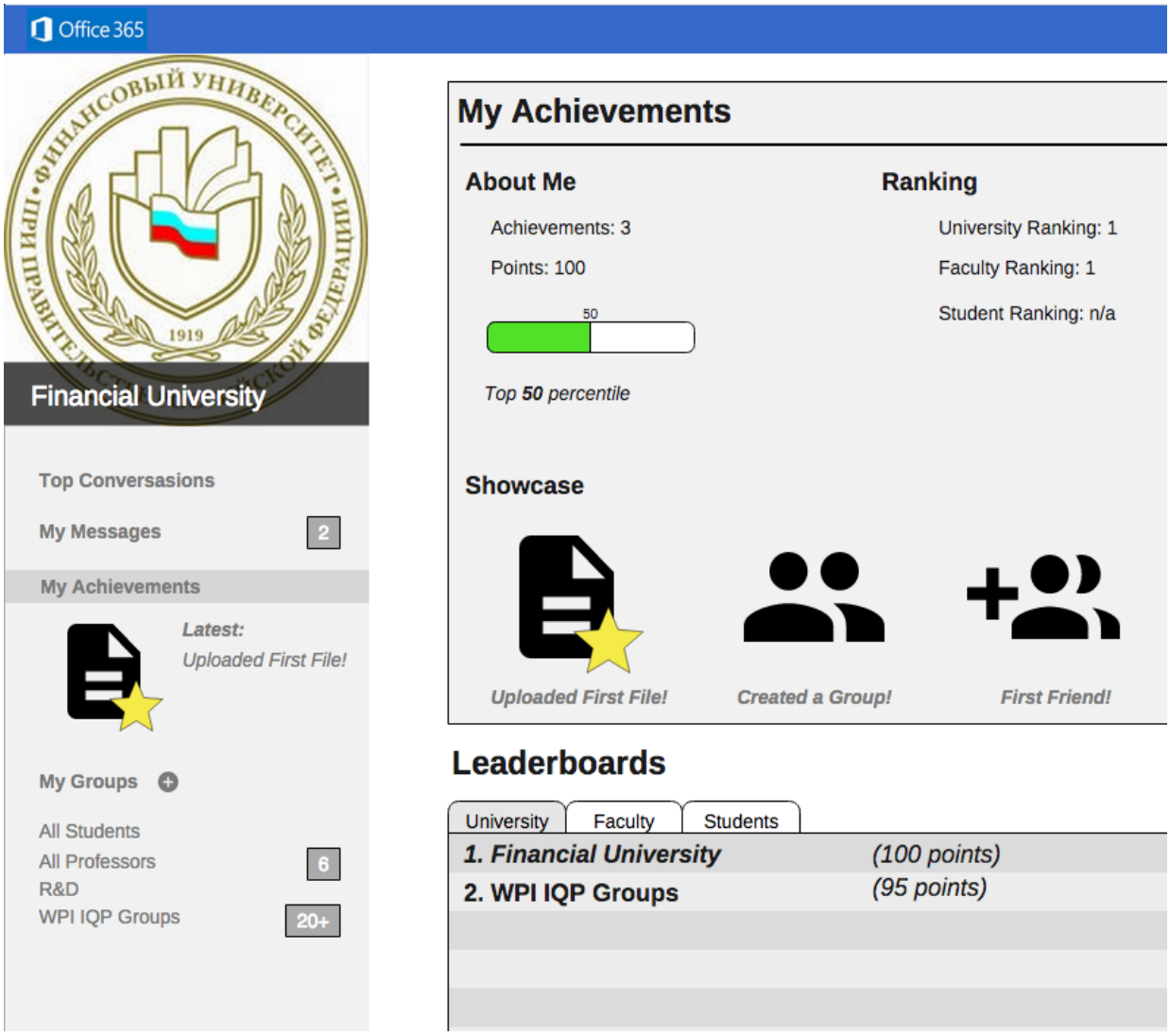

Figure 4-3: User Achievements Page Mockup

4.7 Limitations of Research

Although we gathered a large amount of useful information from our focus groups and interviews, we were not able to obtain the campus-wide quantitative data that we hoped for from our survey discussed in section 3.2.2. We had to forgo analyzing and presenting the data that was collected, as it was not a valid representation of the university as a whole.

Because of this we were unable to quantitatively determine what the largest incentives students and faculty are looking for. While we know students and faculty would be accepting of the incentives we have discussed, we were unable to obtain a ranking of which would be the most desired by the students and faculty of the university.

We were only able to provide information from the students and faculty members that we directly spoke with in the focus groups. These incentives are still valid options that are desired, but we just do not know which are the most desirable.

4.8 Summary

Our research provided a number of vital findings to achieve our project goal. We analyzed the current research situation at FU to determine the most challenging obstacles its researchers faced. We found one of the main reasons is that people lack incentives to collaborate on quality research. In order to attract more people to become involved in research collaboration, we suggested potential techniques that can be used to provide the incentives that users could take advantage of. We were not able to make use of all of the methods we proposed, but we believe that the information we have collected and the results we have presented are accurate.

5 CONCLUSIONS AND RECOMMENDATIONS

Our project goal was to determine how to motivate students and faculty members at the Financial University under the government of the Russian Federation (FU) to increase research output and collaboration. The development of gamification for increasing research productivity is still in its early stages, but it shows a lot of promise if it can be implemented. To help stimulate this process we have created a mockup to give an idea of how gamification within SharePoint could look, and we have also provided guidelines to test the effectiveness of gamification. In this chapter we will summarize our conclusions and recommendations.

5.1 Conclusions

By using a cost-benefit framework to analyze our results, we found that currently the barriers to research outweigh the benefits for students and faculty. Even though scholarships and grants are appealing incentives for students and are already provided by FU, few students know about their existence. If more bonuses or research funding were offered to faculty members, they would tend to engage in more research. However, according to our results, offering monetary incentives can be difficult for the university. As a result, using non-monetary incentives may be a more realistic approach. Both students and faculty members discussed how gaining prestige among peers would give them a sense of achievement. Beside personal satisfaction, students can benefit from job or internship opportunities and be attracted by connections with professors. For professors, raising one's status as a researcher can be a big motivation.

We have determined that the gamification techniques that best fit these incentives for research are point systems, group progress bars, and leaderboards, which can translate into both virtual and tangible rewards. These techniques could be implemented within SharePoint using already existing products such as Badgeville or RedCritter.

5.2 Project Limitations

Although we have tried to do the best that we could in our project, limitations still existed due to time constraints. We attempted through a survey to gather quantifiable information about the incentives and obstacles to research; however, the survey was only able to be sent out during the final two weeks of our stay in Moscow, and it was sent out incorrectly, so we were not able to gather reliable or sufficient responses for a meaningful analysis. Due to this we do not have quantitative data to support our conclusions, only qualitative data from focus groups and interviews. The information from our focus groups and interviews only provide a list of incentives rather than a ranking of them.

5.3 Recommendations

Based on our group's project research and conclusions, we recommend the following to Financial University:

- *Carry out the survey that we had attempted to complete data collection from all potential researchers in the FU system*
- *Provide the identified incentives to researchers*
- *Develop gamification techniques within the SharePoint platform based on incentives that we have proposed*
- *Track the effectiveness of gamification techniques as a way to stimulate research*

We encourage our Russian counterparts to gather survey responses by sending the survey out again as an independent request. We suggest gathering at least 500 responses within one month to have statistically meaningful data. With this information FinLab can more definitively determine what the most important incentives and obstacles to research collaboration at FU are, to assess whether these results align with our existing qualitative data. This will allow FinLab to find the top ranking incentives and obstacles.

Once the top ranking incentives are found, we recommend that the Financial University uses this ranking to determine what incentive can be offered and implemented. The main incentives we found were monetary incentives and recognition for a researcher's work. Students expressed interest in earning scholarships based on their research, while faculty expressed interest

in additional research grants or bonuses. Both students and faculty alike expressed great interest in receiving recognition for their work in research. For example, these recognition-based incentives could be implemented by presenting awards to the top five researchers from each faculty department or from the university as a whole, with separate awards for undergraduates, master's students, and professors.

After data collection and analysis has been completed, we recommend that the Financial University implement gamification techniques using the most popular incentives and provide rewards corresponding to the researcher's rankings. These rewards are both internal to the collaboration platform, such as points, badges and levels, as well as real-world rewards such as scholarships, grants, and awards.

Two possible ways our team suggests to track the effectiveness of gamification techniques within an online collaborative tool are to:

- *Develop a user experience survey*
- *Compare research output of two groups, with one as a control*

After a certain period of time, such as half a year or one year, users can receive a short online survey to gauge their satisfaction with the gamification techniques when they submit a finished paper. The users can rate techniques on a scale from one to five based on how much each technique influenced them in their research. They should also be encouraged to leave qualitative feedback in addition to their ratings. This feedback would be aimed at determining what gamification techniques in the platform had the most impact on them. If there is a low response rate for this survey, a small reward, such as a gift card to a store, could be offered to a random participant in a lottery fashion. Using this user feedback, gamification within the system could be evaluated for strengths and weaknesses.

In addition to collecting user's feedback, we also recommend that FU test the effectiveness of gamification techniques through the use of a control group. Users of the collaboration platform would be separated into two groups: those who are given access to the gamification techniques and incentives and a control group of researchers who use the same platform but don't have access to these incentives. These two groups could them be compared to one another in terms of accomplishments after a one year time period. Each group could be

tracked using metrics such as the number of publications, the quality of publications, and the level of group work versus individual work. After one academic year these metrics can be compared to help determine whether gamification techniques influenced the level of research collaboration and production.

5.4 Summary

We are confident that these recommendations can help the Financial University increase the level of research and collaboration conducted by both students and faculty. Implementing proper gamification techniques will help to outweigh many of the obstacles that currently prevent students and faculty from conducting quality collaborative research. By removing these obstacles and providing more incentives to conduct research, the level of collaborative research being done will rise, and along with it the quality of work that is being published by the Financial University researchers.

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APPENDICES

Appendix A: **Sponsor Description**

The Financial University (2015a) under the Government of the Russian Federation is a state-funded, finance and economics focused educational and research institution. It is one of the oldest universities in Russia, originally founded in December 1918 as the Moscow Institute of Economics and Finance. According to the university's official website, Financial University is known as a top university in Russia.

The Financial University (2015c) is a nationwide institution spanning 11 time zones. It consists of 21 faculties, 15 of which are located in the Moscow main campus. The locations of the university's branches are shown in Figure A-1. This university not only focuses on education, but also puts a lot of effort in research. Two educational and training laboratories, two teaching and research laboratories, and three research centers enable the Financial University to become one of the leading research institutions in Russia. The university currently employs 2,996 academic staff members and has approximately 58,000 students enrolled in Moscow alone. The Financial University is eager to develop international cooperation, currently partnering with over 100 universities around the world, as shown in Figure A-2.

One of the research centers within the university is the International Financial Laboratory (2012). The Financial Laboratory's mission is "...generating scientific knowledge in Finance, Economics, and several neighboring fields, with special emphasis on quantitative and empirical studies" (para 1). The Financial Laboratory, or FinLab helps host collaborative projects among faculty, researchers and students.

Professor Alexander Didenko is the direct sponsor of this project and one of the directors of the Financial University. Prof. Didenko (2015) is the head of the R&D Planning and Support Department at the Financial University. He also helps the International Financial Laboratory at the Financial University and is the Deputy Chairman of the Council for Research within the Council of Young Scientists. The Council of Young Scientists (2015) is a voluntary scientific

society whose mission is to “create conditions for the development of research activities and to promote the professional growth of young scientists” (para 1).

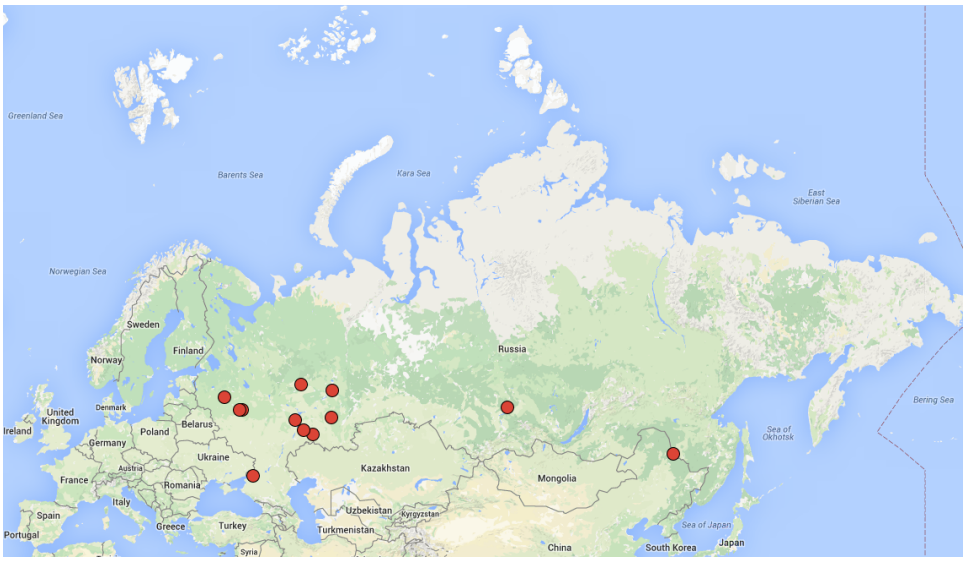

Figure A-1: Locations of Financial University Branches (Google, 2015a)

Figure A-2: Leading Higher Education Institutions And Financial And Banking Institutions. (The Financial University, 2013d, para. 4)

Appendix B: Focus Group Protocol

Introduction:

We are students from Worcester Polytechnic Institute (WPI) located in Worcester, Massachusetts. Our group is studying in Moscow in order to complete an important academic requirement for graduation. Our project involves determining potential ways to increase research collaboration within the Financial University (FU) through the use of an online collaboration platform.

Mission Statement:

The goal of our project is to determine how to improve Financial University's knowledge and research management software so that the researchers at the Financial University's many campuses can collaborate on their research more effectively and efficiently.

Conductors of Focus Group:

Time, Date, and Location:

Participants:

Relationship with FU:

Focus Group Questions

General Research

1. What sort of research do you do? How often do you write research papers? How often do you publish these papers?

2. How do you find your research partners?

3. What current tools do you use for research collaboration? (Google Docs, Email, etc.). What do you like about these tools? What do you dislike?

4. What are the factors that block you from creating and publishing papers? Are there other, larger obstacles for collaboration?

Gamification

5. What are the incentives for you to conduct research? If a collaboration platform had rewards based on use (grants for researchers, prizes for students, etc.), would more people use it?

Mobile Applications

6. We want to design a mobile application to connect researchers with each other. What features would be useful in this? What about a function that helps you find researchers with similar interests? (The network will be internal for now but expandable)

Reproducible Research

7. Are you familiar with the principles of reproducible research? (If no, explain) Would you be willing to incorporate these principles into your research?

End

8. Is there anything else anyone wants to add that we didn't touch upon?

Appendix C: Focus Group Notes - Undergraduates (Sociologists)

Introduction:

We are students from Worcester Polytechnic Institute (WPI) located in Worcester, Massachusetts. Our group is studying in Moscow in order to complete an important academic requirement for graduation. Our project involves determining potential ways to increase research collaboration within the Financial University (FU) through the use of an online collaboration platform.

Mission Statement:

The goal of our project is to determine how to improve Financial University's knowledge and research management software so that the researchers at the Financial University's many campuses can collaborate on their research more effectively and efficiently.

Conductors of Focus Group:
Ying Lu
Christopher Navarro
Nicholas Wong

Time, Date, and Location:
15:40-16:30 September 14, 2015, Bloomberg Lab, Financial University

Participants:

Relationship with FU:
2nd year undergraduate w/ sociologist background
2nd year undergraduate w/ sociologist background
2nd year undergraduate w/ sociologist background
2nd year undergraduate w/ sociologist background
3rd year undergraduate w/ sociologist background

Focus Group Questions

General Research

1. What sort of research do you do? How often do you write research papers? How often do you publish these papers?
    - *Most of their research is done for academic purpose by using the Internet and the university's library.*
    - *Why do you research?*
        - *For marks/grades*
        - *For master's project*
    - *Do you write research papers?*
        - *Rarely, most of the students involvement with research papers are during their 4th year*
            - *Instead a few keep portfolios*
            - *Do you publish these?*
                - *Rarely, however the group had a desire to publish their work if it was of good quality.*

2. How do you find your research partners?
    - *Normally, through their own personal network of friends*
    - *They also sometimes use social media tools to connect with others*
        - *Example given: Facebook*

3. What current tools do you use for research collaboration? (Google Docs, Email, etc.). What do you like about these tools? What do you dislike?
    - *Google translate, docs, email, and social media tools were listed.*
        - *However, the group preferred to meet in person for collaboration or work individually.*
        - *How do you work individually?*
            - *Divide and conquer with tasks*

4. What are the factors that block you from creating and publishing papers? Are there other, larger obstacles for collaboration?
    - *Time*
    - *Lack of interest or motivation*
    - *Not enough skill*
    - *3rd or 4th year student bias for research publication*
    - *Problems with professors*

        - *There is no support or instruction to help them publish their research.*
            - *Are there accessible resources that could help guide you through the publication process?*
                - *None that they are aware of.*
                    - *There is a lack of general support for the process.*

Gamification

5. What are the incentives for you to conduct research? If a collaboration platform had rewards based on use (grants for researchers, prizes for students, etc.), would more people use it?
    - *Incentives:*
        - *Personal interest*
        - *Recognition*
        - *Their work could be shown to potential employers*
        - *To share personal opinions*
    - *What rewards would you like to see?*
        - *Scholarships*
        - *Monetary rewards*
        - *Recognition*
        - *Connect with companies (career driven)*

Mobile Applications

6. We want to design a mobile application to connect researchers with each other. What features would be useful in this? What about a function that helps you find researchers with similar interests? (The network will be internal for now but expandable)
    - *Do you all have a smartphone?*
        - *All answered yes.*
    - *Features mention:*
        - *Avoid chat feature:*
            - *The group believed this feature would be too informal.*
        - *Online functionality:*
            - *The group wanted to be able to access their files offline.*
        - *Contact information:*
            - *The group wanted to be able to find a person's contact information through the app.*

Reproducible Research

7. Are you familiar with the principles of reproducible research? (If no, explain) Would you be willing to incorporate these principles into your research?
    - *Are you aware of what reproducible research is?*
        - *All answered no.*
    - *A brief explanation of the subject was given to the group.*
    - *Would you be willing to incorporate this idea into your research?*
        - *Only if it is a large project, otherwise no.*

End

8. Is there anything else anyone wants to add that we didn't touch upon?
    - *Exchanged contact information*
    - *Gave the participant a survey that they would fill out and return to our Russian associates.*

Appendix D: Focus Group Notes - Master Students

Introduction:

We are students from Worcester Polytechnic Institute (WPI) located in Worcester, Massachusetts. Our group is studying in Moscow in order to complete an important academic requirement for graduation. Our project involves determining potential ways to increase research collaboration within the Financial University (FU) through the use of an online collaboration platform.

Mission Statement:

The goal of our project is to determine how to improve Financial University's knowledge and research management software so that the researchers at the Financial University's many campuses can collaborate on their research more effectively and efficiently.

Conductors of Focus Group:
Ying Lu
Christopher Navarro
Nicholas Wong

Time, Date, and Location:
17:00-17:50 September 14, 2015, Bloomberg Lab, Financial University

Participants:

Relationship with FU:
1st year master student
1st year master student
1st year master student
1st year master student
1st year master student
1st year master student

Focus Group Questions

General Research

1. What sort of research do you do? How often do you write research papers? How often do you publish these papers?
    - *What sort of research do you do?*
        - *Corporate findings*
        - *Managing business data*
        - *Master dissertations*
        - *Writing and presenting financial findings*
        - *The study of theory versus practice*
            - *Through the use of Bloomberg*
    - *How often do you write research papers?*
        - *Approximately 2 times per semester*
    - *How often do you publish these?*
        - *Sometimes, more so when there is a competition.*
            - *Some members had published up to 30 articles*
        - *There is a large gap between the quality and quantity of published papers.*

2. How do you find your research partners?
    - *Scientific advisors*
    - *Addressing a professor who is an expert in your research topic.*
    - *Through student societies*
        - *Every faculty has a local society that can help find you partners.*
    - *The students mentioned a lot of individual work is required to find research partners.*

3. What current tools do you use for research collaboration? (Google Docs, Email, etc.). What do you like about these tools? What do you dislike?
    - *What current tools do you use for collaboration?*
        - *Social networks*
        - *Skype*
        - *Email*
        - *Dropbox*
        - *Google Drive*
        - *FinLab Wiki*
    - *What do you like about them?*
        - *Ability to send documents*

        - *Version control*
        - *Easy to use*
        - *Privacy control*
        - *Chat system capability*
    - *What do you dislike?*
        - *A lot of the dislikes focused around FinLab Wiki*
            - *FinLab Wiki:*
                - *Not user friendly*
                - *Sometime broke with file upload*
                - *No privacy*
                - *No file or message sending*

4. What are the factors that block you from creating and publishing papers? Are there other, larger obstacles for collaboration?
    - *Other priorities*
    - *Finding the right people to work with*

Gamification

5. What are the incentives for you to conduct research? If a collaboration platform had rewards based on use (grants for researchers, prizes for students, etc.), would more people use it?
    - *Incentives:*
        - *Monetary*
        - *Fills degree/grade requirements*
        - *Scholarships*
            - *Want more opportunities for them as well*
        - *Recognition*
        - *A lasting impression*
        - *Looks good to employers, and other selective processes*
    - *More people would be willing to use a tool, which used these incentives.*

Mobile Applications

6. We want to design a mobile application to connect researchers with each other. What features would be useful in this? What about a function that helps you find researchers with similar interests? (The network will be internal for now but expandable)
    - *Features:*
        - *File sharing*
        - *Chat*

        - *Newsfeed/timeline of current work*
        - *Ability to follow other researchers*

Reproducible Research

7. Are you familiar with the principles of reproducible research? (If no, explain) Would you be willing to incorporate these principles into your research?
    - *Are you familiar with reproducible research?*
        - *Yes, somewhat.*
    - *Would you be willing to use it?*
        - *Most said yes, and some were even using in their research already.*
        - *Those who weren't using it would strongly consider using it.*

End

8. Is there anything else anyone wants to add that we didn't touch upon?
    - Exchanged emails
    - Handed out paper survey to participants

Appendix E: Focus Group Notes - Professors

Introduction:

We are students from Worcester Polytechnic Institute (WPI) located in Worcester, Massachusetts. Our group is studying in Moscow in order to complete an important academic requirement for graduation. Our project involves determining potential ways to increase research collaboration within the Financial University (FU) through the use of an online collaboration platform.

Mission Statement:

The goal of our project is to determine how to improve Financial University's knowledge and research management software so that the researchers at the Financial University's many campuses can collaborate on their research more effectively and efficiently.

Conductors of Focus Group:
Josh Hebert
Agyness Liao
Justin Vitiello

Time, Date, and Location:
13:40-14:23, September 15, 2015, Bloomberg Lab, Financial University

Participants:

Relationship with FU:
Professor
Professor

Focus Group Questions

General Research

1. What sort of research do you do? How often do you write research papers? How often do you publish these papers?
    - *What sort of research do you do?*
        - *Articles in foreign and Russian journals*
        - *Conference and roundtable meetings*
            - *For degrees, PhD, etc.*
        - *Supervise students articles*
        - *Professional work related to expertise*
    - *There is difference between Russian and international journals*
        - *Quality for international journals is higher*

2. How do you find your research partners?
    - *Through Dean's office resources*
        - *Masters:*
            - *Need to submit their working area to dean's office and professors will assign them to projects*
        - *Bachelors:*
            - *Professors create offers involving different research topics, and student apply for them*
        - *Professors will supervise 5-7 students, and then build a team*
    - *Need to keep in touch with Prof. and Dean's office to get information for available research opportunities*

3. What current tools do you use for research collaboration? (Google Docs, Email, etc.). What do you like about these tools? What do you dislike?
    - *Google drive/Email:*
        - *There is no time to study other platforms; Drive is simple and open source*
    - *Alternatives:*
        - *Dropbox for students*

4. What are the factors that block you from creating and publishing papers? Are there other, larger obstacles for collaboration?
    - *Supervisors need to be motivated so that students will publish consistently; however, it is easier to work with an individual student.*
        - *More efficient to work alone*

- *Journals may not accept a paper*
- *Time constraints*
- *Lack of interest/motivation from students*

Gamification

5. What are the incentives for you to conduct research? If a collaboration platform had rewards based on use (grants for researchers, prizes for students, etc.), would more people use it?
    - *Incentives:*
        - *Scholarships*
        - *Education programs/grants, save money*
        - *Provide career opportunities*

Mobile Applications

6. We want to design a mobile application to connect researchers with each other. What features would be useful in this? What about a function that helps you find researchers with similar interests? (The network will be internal for now but expandable)
    - *Have a progress bar for each researcher*
        - *Researchers will usually not share their data and progress*
        - *This will create competition*
        - *Easy to measure*
    - *Why avoid sharing?*
        - *Plagiarism*
        - *Afraid to have similar work to present at the same time*
        - *Want to be unique and individual*

Reproducible Research

7. Are you familiar with the principles of reproducible research? (If no, explain) Would you be willing to incorporate these principles into your research?
    - *Yes:*
        - *However, there is no widely available system platform to do it*
    - *Would be willing to incorporate; however, this is hard to continue among students, especially after they graduate*

End

8. Is there anything else anyone wants to add that we didn't touch upon?
    - *System that allows students to continue research from previous students*
        - *No research focus with 1st and 2nd year students*
            - *Teach students about researching earlier (publication and writing)*
        - *FU is an educational university, so there shouldn't be too much focus on research*

- *Contact Info:*
    - *Can be found at Room 343*

Appendix F: Focus Group Notes - Undergraduates (International Economic Relations)

Introduction:

We are students from Worcester Polytechnic Institute (WPI) located in Worcester, Massachusetts. Our group is studying in Moscow in order to complete an important academic requirement for graduation. Our project involves determining potential ways to increase research collaboration within the Financial University (FU) through the use of an online collaboration platform.

Mission Statement:

The goal of our project is to determine how to improve Financial University's knowledge and research management software so that the researchers at the Financial University's many campuses can collaborate on their research more effectively and efficiently.

Conductors of Focus Group:
Josh Hebert
Agyness Liao
Justin Vitiello

Time, Date, and Location:
15:40-16:10, September 15, 2015, Bloomberg, Financial University

Participants:

Relationship with FU:
International Economic Relations (IER) Undergraduate
International Economic Relations (IER) Undergraduate
International Economic Relations (IER) Undergraduate

Focus Group Questions

General Research

1. What sort of research do you do? How often do you write research papers? How often do you publish these papers?
    - *Most research pertains to academic requirements*
    - *Published a couple papers within the University; however, this is a low level/college level of publication*
    - *There isn't a lot of collaboration*

2. How do you find your research partners?
    - *Through Professors*
    - *Through own personal networks or friends and associates*

3. What current tools do you use for research collaboration? (Google Docs, Email, etc.). What do you like about these tools? What do you dislike?
    - *A majority of research is done individually*
    - *Face-to-face meetings/communication*
    - *Dropbox*
    - *Email*

4. What are the factors that block you from creating and publishing papers? Are there other, larger obstacles for collaboration?
    - *Difficult to find useful material*
        - *Hard to use search engines to find specific information*
        - *Library at FU is complicated to use*
        - *A lot of potential resources cost money*

Gamification

5. What are the incentives for you to conduct research? If a collaboration platform had rewards based on use (grants for researchers, prizes for students, etc.), would more people use it?
    - *Incentives:*
        - *Career and job opportunities*

Mobile Applications

6. We want to design a mobile application to connect researchers with each other. What features would be useful in this? What about a function that helps you find researchers with similar interests? (The network will be internal for now but expandable)

- *Keep files private to avoid plagiarism*
- *Implement notification system with file sharing*

Reproducible Research

7. Are you familiar with the principles of reproducible research? (If no, explain) Would you be willing to incorporate these principles into your research?
    - *No*
    - *The topic should be presented in a user-friendly way that is:*
        - *Structured well*
        - *Easy to understand*

End

8. Is there anything else anyone wants to add that we didn't touch upon?
    - *Potential solutions to get people to collaborate*
        - *Insure competitions are fair, otherwise motivation will diminish*
    - *Scholarship*
        - *The current system is not clear enough*
        - *The requirements for scholarships are too high*
        - *Not enough recognition*
    - *Referencing Research:*
        - *There is no Russian standard to do it*

Appendix G: Focus Group Notes - Undergraduates (International Finance Faculty)

Introduction:

We are students from Worcester Polytechnic Institute (WPI) located in Worcester, Massachusetts. Our group is studying in Moscow in order to complete an important academic requirement for graduation. Our project involves determining potential ways to increase research collaboration within the Financial University (FU) through the use of an online collaboration platform.

Mission Statement:

The goal of our project is to determine how to improve Financial University's knowledge and research management software so that the researchers at the Financial University's many campuses can collaborate on their research more effectively and efficiently.

Conductors of Focus Group:
Dylan Baranik
Eli Gonzalez
Han Junxiu

Time, Date, and Location:
13:20-14:00, September 16, 2015, Bloomberg Lab, Financial University

Participants:

Relationship with FU:
2nd year IFF Undergraduate
2nd year IFF Undergraduate
3rd year IFF Undergraduate
3rd year IFF Undergraduate
3rd year IFF Undergraduate

Focus Group Questions

General Research

1. What sort of research do you do? How often do you write research papers? How often do you publish these papers?
    - *What sort of research do you do?*
        - *Trading research, company relations, investor strategies, accounting, analyzing key performances and futures of companies*
    - *How often do you publish papers?*
        - *Three of the members had published before*
            - *Approximately once a year*
            - *Some have this as a requirement for their degree*

2. How do you find your research partners?
    - *No standardized process to do this*
    - *Most people just end up working with familiar acquaintances*
    - *Sometimes teachers will delegate people to work together*
    - *Team member makes you more productive, more efficient*
        - *Perception is that working with more people would lead to a better quality of work*

3. What current tools do you use for research collaboration? (Google Docs, Email, etc.). What do you like about these tools? What do you dislike?
    - *Not a lot of tools are used, instead there is a lot of face-to-face communication*
        - *Meeting in person is better than email; phone communication is not preferred*
    - *Email is common and the preferred method for communication and sharing ideas*

4. What are the factors that block you from creating and publishing papers? Are there other, larger obstacles for collaboration?
    - *Different standards and requirements for different journals are boring to learn and difficult to deal with*
    - *Waste time making work appropriate for different magazines with different standards*
    - *You have to pay to get your work published*
    - *Collaboration obstacles:*
        - *Haven't found an ideal partner*
            - *Would prefer a partner but it's difficult to find one*
            - *Process of finding a partner is difficult and can be inconsistent*

- *Very difficult to find time to work with group members: can delegate to get around this problem, however this commonly leads to people becoming more separated from the rest of the group*
- *General strategy is talk about tasks to be accomplished face-to-face and then separate to do delegated tasks*

Gamification

5. What are the incentives for you to conduct research? If a collaboration platform had rewards based on use (grants for researchers, prizes for students, etc.), would more people use it?
    - *Be able to market previous research to companies to provide career opportunities*
    - *Improve grades, get extra credit*
    - *Doing research projects helps you learn*
    - *Scholarships*
        - *Many aren't compensated, so there is no incentive for these students*
        - *There are only 9 scholarship students in International Finance Faculty at any given time*

Mobile Applications

6. We want to design a mobile application to connect researchers with each other. What features would be useful in this? What about a function that helps you find researchers with similar interests? (The network will be internal for now but expandable)
    - *Profile should have all of these things:*
        - *Photo, resume, spheres of interest, previous works, age, gender, competitions or conferences they are in, magazines published in, future career plans, language, location, notes about themselves, what personality traits are they looking for, skills (programming, etc.) they have and skills they are looking for*
        - *Everyone has a smartphone ~95% percent*

Reproducible Research

7. Are you familiar with the principles of reproducible research? (If no, explain) Would you be willing to incorporate these principles into your research?
    - *Somewhat familiar (only one student knew about it)*
    - *Definitely, useful for teachers as well*
    - *Teachers can control working process, have to show your results*
    - *Useful for future publications*

End

8. Is there anything else anyone wants to add that we didn't touch upon?
    - *(Skipped)*

Appendix H: Focus Group Notes - Young Scientist Representatives

Introduction:

We are students from Worcester Polytechnic Institute (WPI) located in Worcester, Massachusetts. Our group is studying in Moscow in order to complete an important academic requirement for graduation. Our project involves determining potential ways to increase research collaboration within the Financial University (FU) through the use of an online collaboration platform.

Mission Statement:

The goal of our project is to determine how to improve Financial University's knowledge and research management software so that the researchers at the Financial University's many campuses can collaborate on their research more effectively and efficiently.

Conductors of Focus Group:
Josh Hebert
Eli Gonzalez
Justin Vitiello

Time, Date, and Location:
16:00-17:15, September 25, 2015, Bloomberg Lab, Financial University

Participants:

Relationship with FU:
Young Scientist Representative
Young Scientist Representative
Young Scientist Representative
Young Scientist Representative

Focus Group Questions

General Research

1. What sort of research do you do? How often do you write research papers? How often do you publish these papers?
    - *Dependent on workload, however, it is required to publish a number per year*
        - *Sometimes 1 or 2 per year (below average)*
        - *5 or 6 (average)*
        - *10 and up (above average)*
        - *If they take part in a round table, they will publish proceedings*
    - *Collaborative research is often easier to publish, as co-authors may have connections*
        - *More authors, more connections*
        - *If you do not have particularly strong network, it is better to collaborate*

2. How do you find your research partners?
    - *Through own personal networks*

3. What current tools do you use for research collaboration? (Google Docs, Email, etc.). What do you like about these tools? What do you dislike?
    - *Russia is very conservative in this respective*
        - *WhatsApp, Skype, text messaging very popular*
        - *Typical to meet once per month to divide work*
            - *However, there are teams that meet far more often*

4. What are the factors that block you from creating and publishing papers? Are there other, larger obstacles for collaboration?
    - *No real obstacles to publishing in Russia*
        - *The main issue with Russian journals is the quality. They tend to not have high quality article*
    - *International articles*
        - *Charge money just to look at article. Does not guarantee publication*
        - *In Russia, publication is guaranteed if the fee is paid*

Gamification

5. What are the incentives for you to conduct research? If a collaboration platform had rewards based on use (grants for researchers, prizes for students, etc.), would more people use it?

- *As of right now, for this group, if there is a requirement to publish a number of articles per year, but they still do*

    - *However, they will publish to lower quality journals from an approved list that FU provides*
- *People will write papers for the reputation*
    - *These lead to improved career paths*
    - *If they have the time, they will publish*
- *The best incentives should be the desire to be researchers*
    - *It should not be a quantity requirement for a degree*
    - *People will either copy-paste other articles, write low-quality ones, etc.*
    - *Leads to bad researchers receiving degrees*

Mobile Applications

6. We want to design a mobile application to connect researchers with each other. What features would be useful in this? What about a function that helps you find researchers with similar interests? (The network will be internal for now but expandable)
    - *The idea is good. This should not be just a tool to view papers because plenty of tools that do that.*
        - *Should force public profiles and focus on providing contact information*
    - *Will likely only be popular in major cities with colleges/universities*
    - *Should establish a precedent that if you have an account, you are expected to reply*
    - *Replying should prevent ambiguity. Responses should be yes or no*

Reproducible Research

7. Are you familiar with the principles of reproducible research? (If no, explain) Would you be willing to incorporate these principles into your research?
    - *May discourage people from checking the credibility*
        - *Looking at these algorithms may lead to the false assumption that there is nothing to explore*
        - *May stunt creativity and innovation*
    - *Reproducible research can cause issues when working with data from a company, especially if that information is private*
    - *FinLab Wiki was an attempt at this, but it shows too much information before a paper is ready to publish*
        - *Researchers prefer privacy while working on papers*

End

8. Is there anything else anyone wants to add that we didn't touch upon?
    - *(Skipped)*

Appendix I: Sponsor Interview Protocol

Introduction:

We are students from Worcester Polytechnic Institute (WPI) located in Worcester, Massachusetts. Our group is studying in Moscow in order to complete an important degree requirement by completing this research project. Our project involves looking at potential ways to increase research collaboration among researchers within the Financial University, particularly among users of FinLab Wiki. Your responses will help us understand the actual usage of FinLab Wiki and investigate potential ways to improve it.

Mission Statement:

The goal of the project is to determine how to improve Financial University's knowledge and research management software so that the researchers at the Financial University's many campuses can collaborate on their research more effectively and efficiently.

Confidentiality:

Before we start this interview we want to make sure that you give us your permission to use any information you provide in our final report. We will keep your identity anonymous (if desired), and we can stop the interview at any time if you feel uncomfortable. You also do not have to answer any questions that would make you uncomfortable.

Conductors of Interview:

Time, Date, and Location:

Interviewee:

Name:	***Relationship with FU:***

Interview Questions

1. As the new Dean of IER Faculty (International Economic Relations), what do your duties include?

2. Can you tell us about the structure of researchers of the Financial University?

3. Can you tell us about the details of the research situation at this university?

4. What were your original intentions with the WPI project last year? Do you think the project was successful?

5. What do you see as a major roadblock to research productivity: within FU and worldwide?

6. For the gamification team, we are looking to provide tangible incentives, such as small research grants, a free trip to a conference in their field, or anything similar. Is this a possibility within the University?

Appendix J: Sponsor Interview Notes

Introduction:

We are students from Worcester Polytechnic Institute (WPI) located in Worcester, Massachusetts. Our group is studying in Moscow in order to complete an important degree requirement by completing this research project. Our project involves looking at potential ways to increase research collaboration among researchers within the Financial University, particularly among users of FinLab Wiki. Your responses will help us understand the actual usage of FinLab Wiki and investigate potential ways to improve it.

Mission Statement:

The goal of the project is to determine how to improve Financial University's knowledge and research management software so that the researchers at the Financial University's many campuses can collaborate on their research more effectively and efficiently.

Confidentiality:

Before we start this interview we want to make sure that you give us your permission to use any information you provide in our final report. We will keep your identity anonymous (if desired), and we can stop the interview at any time if you feel uncomfortable. You also do not have to answer any questions that would make you uncomfortable.

Conductors of Interview:

Han Junxiu
Ying Lu

Time, Date, and Location:

14:00-15:15, September 21, 2015, Room 315, Financial University

Interviewee:

Name:	***Relationship with FU:***
Prof. Alexander Didenko (permission given)	Dean of IER Faculty (International Economic Relations)

Interview Questions

1. As the new Dean of IER Faculty (International Economic Relations), what do your duties include?
    - *Everything:*
        - *More specifically, everything that will make students happy.*
        - *Prepare students to write their dissertations*
        - *Instruct students in activities, such as:*
            - *Competitions*
            - *Conferences*
            - *Etc.*
    - *Key Performance Indicators (KPI):*
        - *Short Term:*
            - *Make students desirable to employers*
        - *Long Term:*
            - *Make students influential in the industry/world*

2. Can you tell us about the structure of researchers of the Financial University?
    - *There are two types of researcher at FU: major researchers and student researchers.*
        - *Major Researchers (such as PhDs)*
            - *They teach and do research at FU*
            - *They are paid for researching*
                - *Topics of their research are normally chosen from proposed government plan so that they are funded, as opposed to self-created topics.*
            - *Incentives:*
                - *Personal interest/curiosity*
                - *In order to be re-elected (rehired) they must produce a certain number of publications*
        - *Student Researchers (Bachelors and Masters):*
            - *Research and take courses at FU*
                - *They must apply for certain research topics which are advertised by the different departments at FU*
            - *Incentives:*
                - *Degree requirements:*
                    - *Grades*
                    - *Dissertations*

- *Published papers reflect well on student portfolios*
- *Government is more likely to provide money to student who participate in research*

■ *Do Students work for major researchers?*

- *Theoretically, yes; however, departments do not trust the students to arrange these relationships and lack time for arranging them themselves.*

3. Can you tell us about the details of the research situation at this university?
   - *Not happy about the current situation:*
     - *Sometimes departments won't change the topic of the research topic year-to-year.*
       - *This is easy for departments and poses fewer risks to serve as a student's dissertation topic.*
       - *Faculties tend to focus on teaching, not researching due to their tendency to do the minimum amount of work.*
     - *Students will give up when encountering problems in research, causing departments to lose students or have low-quality students.*
       - *Students lack the experience to gauge the difficulty of performing a task, and often take on more than they can handle.*
         - *The Pros and Cons section of FinLab Wiki was intended to help inform students of the risks of certain tasks.*
       - *Didenko blames the reporting culture of research publication in Russia for this problem.*

4. What were your original intentions with the WPI project last year? Do you think the project was successful?
   - *Original intentions:*
     - *To increase the cooperation among FU and match students and professors based on research interests.*
     - *Provide a platform where researchers can share results, and build on each other's findings, thus promoting a higher quality of research output.*
   - *Was it successful?*
     - *Yes*
       - *FinLab Wiki satisfied the original goals; however, it can be more successful*
       - *FinLab Wiki's major obstacle was lack of usage and not enough people realize its value*

5. What do you see as a major roadblock to research productivity: within FU and worldwide?
    - *Within FU:*
        - *Lack of motivation*
        - *Language barriers*
        - *Hard To Find trustworthy cooperators*
        - *Students don't have enough experience:*
            - *They don't put in enough effort to produce high quality research*
            - *They often give up*
            - *Don't know how much they can handle*
    - *Worldwide:*
        - *The Western world of research is ideal compared to the current situation in FU and Russia*

6. For the gamification team, we are looking to provide tangible incentives, such as small research grants, a free trip to a conference in their field, or anything similar. Is this a possibility within the University?
    - *Incentives for major researchers:*
        - *Hard to provide money*
            - *It isn't a good way to encourage researchers; it will spoil them.*
        - *Inviting a professor to a conference might be a bad idea.*
            - *They would have fun instead of working.*
    - *Incentives for students:*
        - *Recognition:*
            - *Certificates*
            - *Diplomas*
        - *Educational grants, such as a reduction in tuition*

Appendix K: IT Representative Interview Protocol

Introduction:

We are students from Worcester Polytechnic Institute (WPI) located in Worcester, Massachusetts. Our group is studying in Moscow in order to complete an important degree requirement by completing this research project. Our project involves looking at potential ways to increase research collaboration among researchers within the Financial University, particularly among users of FinLab Wiki. Your responses will help us understand the actual usage of FinLab Wiki and investigate potential ways to improve it.

Mission Statement:

The goal of the project is to determine how to improve Financial University's knowledge and research management software so that the researchers at the Financial University's many campuses can collaborate on their research more effectively and efficiently.

Confidentiality:

Before we start this interview we want to make sure that you give us your permission to use any information you provide in our final report. We will keep your identity anonymous (if desired), and we can stop the interview at any time if you feel uncomfortable. You also do not have to answer any questions that would make you uncomfortable.

Conductors of Interview:

Time, Date, and Location:

Interviewee:

Name:	***Relationship with FU:***

Interview Questions

1. As the head of Information Technology at Financial University, what do your duties include?

2. What software tools does the University provide?

3. How is your user-base using the tools currently available to them?

4. What are your opinions on using FinLab Wiki as the premiere collaboration tool for Financial University?

5. Which tools do you think Financial University should use for online research collaboration?

6. Do you know what incentives/rewards could be offered as part of this collaboration tool?

7. Would it be possible to get your contact information as well as the contact information of other IT faculty members that could potentially answer our questions if we decide to follow-up?

Appendix L: IT Representative Interview Notes

Introduction:

We are students from Worcester Polytechnic Institute (WPI) located in Worcester, Massachusetts. Our group is studying in Moscow in order to complete an important degree requirement by completing this research project. Our project involves looking at potential ways to increase research collaboration among researchers within the Financial University, particularly among users of FinLab Wiki. Your responses will help us understand the actual usage of FinLab Wiki and investigate potential ways to improve it.

Mission Statement:

The goal of the project is to determine how to improve Financial University's knowledge and research management software so that the researchers at the Financial University's many campuses can collaborate on their research more effectively and efficiently.

Confidentiality:

Before we start this interview we want to make sure that you give us your permission to use any information you provide in our final report. We will keep your identity anonymous (if desired), and we can stop the interview at any time if you feel uncomfortable. You also do not have to answer any questions that would make you uncomfortable.

Conductors of Interview:

Dylan Baranik
Justin Vitiello

Time, Date, and Location:

15:00-15:30, September 24, 2015, Bloomberg Lab, Financial University

Interviewee:

Name:	***Relationship with FU:***
Vladimir I. Soloviev (Permission given)	Director of IT

Interview Questions

1. As the head of Information Technology at Financial University, what do your duties include?
    - *Strategic development of information technology:*
        - *Change infrastructure to meet expectations for current and future use*
        - *Develop network/services for user convenience*
        - *Allow home access to FU software*
        - *Constant learning environment for users*
        - *Currently, the system in place is cheaper*
    - *Bringing new technology to education and scientific process at FU:*
        - *Large focus on financial simulator creation*
    - *Transforming research processes:*
        - *Make things more automated*
    - *Inform society:*
        - *Development of new portals to inform society about research and education within FU*

2. What software tools does the University provide?
    - *Office 365*
    - *Android/iPhone integration*
        - *Access to remote apps to use financial software*

3. How is your user-base using the tools currently available to them?
    - *(Skipped)*

4. What are your opinions on using FinLab Wiki as the premiere collaboration tool for Financial University?
    - *It was a large stepping-stone but has limitations.*
    - *Limitations:*
        - *Slow*
        - *Not fully customizable*
    - *FU needs to move forward to another tool.*

5. Which tools do you think Financial University should use for online research collaboration?
    - *SharePoint*
        - *Would be better than FinLab Wiki*

        - *Already have Office 365 at FU*
        - *Easier integration with existing systems; however, there is a lack of SharePoint Developers*
    - *Alfresco*
        - *Content management system that uses Java programming*

6. Do you know what incentives/rewards could be offered as part of this collaboration tool?
    - *Grade students within the system:*
        - *Provide the top 20% with rewards*
            - *Rewards should be dependent on faculty*
    - *For Professors:*
        - *Ratings on system might affect earnings*

7. Would it be possible to get your contact information as well as the contact information of other IT faculty members that could potentially answer our questions if we decide to follow-up?
    - *Email given:*
        - *vsoloviev@fa.ru*

Appendix M: Survey Protocol (Translated from Russian)

Financial University under the Government of the Russian Federation

Questionnaire

Dear respondent,

We ask you to participate in a sociological survey about the integration of the students of the Financial University under the government of the Russian Federation in the international scientific life. We guarantee you the full confidentiality of your answers, which will subsequently be used only in conjunction with the answers of all other respondents.

How to fill out the questionnaire: carefully read the questions and circle the answer that best matches your point of view. If none of the options fit your point of view, please give your opinion on the following line.

Your answers will be used only for research purposes. If you are interested we will provide you with the results of the survey.

We appreciate your participation!

Moscow, 2015.

Demographic Information

1. **YOUR SEX**
   - **a.** Male
   - **b.** Female

2. **WHAT IS YOUR ROLE AT FINANCIAL UNIVERSITY?**

Student – bachelor	1st year	2nd year	3rd year	4th year
Student – master	1st year		2nd year	
Postgraduate student	1st year	2nd year	3rd year	
Professor				
Scientist				

General questions

3. WHY IS IT IMPORTANT FOR YOU TO ENGAGE IN SCIENTIFIC ACTIVITY? (CIRCLE ALL THAT APPLY)

A. It is necessary to have an understanding of science in this day and age
B. These skills are necessary in the work environment
C. To meet the requirements and demands of university, department, professors, etc.
D. Personal desire
E. I do not know
F. Other (please, answer on the line provided)_____
_____

4. HOW ACTIVELY DO YOU PARTICIPATE IN ACADEMIC RESEARCH (From 1 till 10, where 1 – min, 10 – max)

1	2	3	4	5	6	7	8	9	10

5. HOW OFTEN DO YOU USE SCIENTIFIC LITERATURE FROM THE INTERNET?

A. Everyday
B. Every 3 days
C. Every Week
D. Other (Please Specify):_____

7. IN WHICH FORMS ARE YOU READY TO PARTICIPATE IN SCIENTIFIC ACTIVITY? (CIRCLE ALL THAT APPLY)

A. Publications in written texts/journals
B. Publication in web-journals
C. Research activity
D. Presentations at conferences, discussions
E. Activity to acquire grants
F. Other (please, answer on the line provided)_____
G. Nowhere

8. LIST THE REASONS FOR YOUR INTEREST IN SCIENTIFIC ACTIVITY. (CIRCLE ALL THAT APPLY)

A. Self help
B. Interest in learning/science
C. A desire to improve the world
D. An opportunity for work
E. Other (please, answer on the line provided)_____
F. I am still not ready to engage in scientific activity

9. HOW OFTEN DO YOU PUBLISH SCIENTIFIC WORK?

A. Never
B. Once a year
C. Once a month

D. Multiple times per month
E. Other:_____

10. WOULD YOU LIKE TO PUBLISH YOUR SCIENTIFIC WORK MORE OFTEN?

A. YES
B. NO, I am not interested in publishing my work
C. NO, currently I have enough publications

11. ARE YOU PLANNING TO CONTINUE YOUR SCIENTIFIC ACTIVITIES?

A. YES
B. NO
C. I am undecided

12. Do you prefer to work with partners or alone? Why?

A. Partners because

_____
_____

B. Alone because

_____
_____

C. No Preference

13. How do you find partners to work with?

A. **Assigned by professor**
B. Work with friends
C. Using social media
D. Recommended by friend or professor
E. Other_____

14. IN WHICH WEB-PLATFORM(S) DO YOU PUBLISH YOUR SCIENTIFIC WORK? (CIRCLE ALL THAT APPLY)

A. E-library
B. Lambert publisher
C. Scopus
D. Web of Science
E. Social Science Research Network (SSRN)
F. Gutenberg

G. Other (please, answer on the line provided):

_____

H. I do not publish my scientific work in any platform
I. I did not know about the existence of these platforms

15. IF YOU DO NOT PUBLISH YOUR WORK ON WEB-PLATFORMS, IS THERE A PARTICULAR REASON WHY? (CIRCLE ALL THAT APPLY)

A. I publish my work on web-platforms
B. The need to translate academic work into a foreign language (for foreign web-platforms)
C. Concerns about copyright infringement
D. It takes too much time to publish
E. The uncertainty in the quality of the scientific work performed
F. It costs money to publish
G. I do not know how to publish
H. I do not have scientific work to publish
I. Other (please, answer on the line provided)_____

Financial University under the government of the Russian Federation with Worcester Polytechnic Institute are creating a platform for the dissemination of scientific knowledge. A place where students and researchers can share their scientific work (articles, monographs, books), find colleagues with similar interests, be able to communicate with one another, and create joint projects. This platform should give an opportunity for students and researchers to collaborate with both domestic and foreign colleagues, to follow the news in their disciplines, to communicate directly with leading scientists, and to find resident and scientific leaders for collaboration.

16. DO YOU USE ANY OF THESE PLATFORMS? (CIRCLE ALL THAT APPLY)

A. Academia.edu
B. Finlabwiki.org
C. Mendeley.com
D. Researchgate.net
E. Linkedin.com
F. Facebook
G. VKontakte
H. Skype
I. SSRN
J. Gutenberg

K. Microsoft Sharepoint
L. Google Docs
M. Open Science Framework
N. I know none of them

17. IN YOUR OPINION, WHAT CHARACTERISTICS AND POSSIBILITIES OF THE WEB-SITE REQUIRED FOR THIS PLATFORM? (FROM 1 TILL 5, WHERE 1- MIN, 5-MAX)

(PLEASE GIVE AN ANSWER TO EACH LINE)

Opportunity to communicate (chats)	5	4	3	2	1
Opportunity to freely publish scientific work	5	4	3	2	1
Opportunity to edit your work	5	4	3	2	1
Opportunity to review the works of other participants	5	4	3	2	1
Opportunity to create tags for publications	5	4	3	2	1
Opportunity to "subscribe" to the publications and disciplines you are interested	5	4	3	2	1
Opportunity to look for a co-author for joint research activity	5	4	3	2	1
Opportunity to find co-authors for joint projects	5	4	3	2	1
Opportunity to find a list of conferences and scientific events	5	4	3	2	1
Opportunity to share files with co-workers	5	4	3	2	1
Opportunity to have a personal profile	5	4	3	2	1
A timeline or progress bar of your work	5	4	3	2	1
Other (please, answer on the line provided) _____ _____ _____	5	4	3	2	1

Thank you for participating in our survey!

Appendix N: Russian Survey Protocol

Финансовый университет при Правительстве РФ

Анкета

Уважаемый участник опроса,

Приглашаем Вас принять участие в социологическом опросе, посвященном вовлеченности студентов Финансового университета в международную научную жизнь. Мы гарантируем полную конфиденциальность Ваших ответов, которые впоследствии будут использованы только в совокупности с ответами других респондентов.

Техника заполнения: прочтите внимательно вопросы анкеты и обведите кружком тот ответ, который наиболее полно совпадает с Вашей точкой зрения. Если ни один из вариантов не соответствует ей, изложите свое мнение на отдельных строках.

Результаты исследования будут использованы в научных целях, и при вашей заинтересованности мы можем предоставить вам результаты проведенного исследования.

Заранее благодарим Вас за сотрудничество!

Москва, 2015

Несколько слов о Вас…

1. **ВАШ ПОЛ**

   a. мужской

   b. женский

2. **В ФИНАНСОВОМ УНИВЕРСИТЕТЕ ВЫ…**

Студент – бакалавр	1 курс	2 курс	3 курс	4 курс
Студент – магистр	1 курс		2 курс	
Студент – аспирант	1 курс	2 курс	3 курс	
Преподаватель (ст. преподаватель, доц., профессор)	1 ст.преподаватель	2 доцент	3 профессор	
Научный работник	1 с.н.с.	2 в.н.с.	3 г.н.с.	

3. **ПОЧЕМУ ДЛЯ ВАС ВАЖНА НАУЧНАЯ ДЕЯТЕЛЬНОСТЬ? (можно отметить несколько вариантов)**

   a. это требование времени

   b. Эти навыйки необходимы в рабочей среде

   c. заставляет вуз, кафедры, преподаватели

   d. личная потребность

   e. не знаю

   f. иное(допишите)_____
   _____

4. **ОЦЕНИТЕ СВОЮ НЫНЕШНЮЮ АКТИВНОСТЬ В НАУЧНОЙ ДЕЯТЕЛЬНОСТИ (ОТ 1 ДО 7, ГДЕ 1- МИНИМАЛЬНОЕ УЧАСТИЕ, А 7- МАКСИМАЛЬНОЕ)**

1	2	3	4	5	6	7

5. **КАК ЧАСТО ВЫ ОБРАЩАЕТЕСЬ К НАУЧНОЙ ЛИТЕРАТУРЕ В ИНТЕРНЕТЕ?**

   a. Ежедневно

   b. каждые три дня

   c. каждую неделю

   d. иное (пожалуйста уточнит)_____

6. **ЕСТЬ ЛИ У ВАС ПРОФАЙЛЫ НА КАКИХ-ЛИБО ПЛАТФОРМАХ?**

   a. да, на российских

   b. да, на зарубежных

   c. да, и на российских, и на зарубежных

   d. нет, но хотелось бы

   e. нет, и нет необходимости

7. **В КАКОЙ ФОРМЕ ВЫ ГОТОВЫ УЧАСТВОВАТЬ В НАУЧНОЙ ДЕЯТЕЛЬНОСТИ? (можно отметить несколько вариантов)**

   a. публикации в бумажных журналах

   b. публикации в электронных журналах

   c. участие в исследовании

   d. выступление на конференциях, дискуссиях

   e. получение гранта

   f. другое (допишите)_____

g. ни в какой

8. ПЕРЕЧИСЛИТЕ ПРИЧИНЫ ВАШЕЙ ЗАИНТЕРЕСОВАННОСТИ В НАУЧНОЙ ДЕЯТЕЛЬНОСТИ? (можно отметить несколько вариантов)

a. самоутверждение

b. интерес к науке, познанию, исследованию

c. желание улучшить мир

d. возможность заработать

e. другое
(допишите)_____
_____

f. пока не готов заниматься научной деятельностью

9. КАК ЧАСТО ВЫ ПУБЛИКУЕТЕ СВОИ НАУЧНЫЕ РАБОТЫ?

a. Часто

b. Раз в год

c. Раз в месяц

d. Несколько раз в месяц

e. Иное _____

10. ХОТЕЛИ ЛИ БЫ ВЫ ПУБЛИКОВАТЬСЯ ЧАЩЕ?

a. Да

b. нет, у меня достаточно публикаций

c. нет, мне это не интересно

11. ПЛАНИРУЕТЕ ЛИ ВЫ В ДАЛЬНЕЙШЕМ ЗАНИМАТЬСЯ НАУЧНОЙ ДЕЯТЕЛЬНОСТЬЮ?

a. Да

b. Нет

c. пока не решил

12. Вы предпочитаете работать с партнерами или в одиночку? Почему?

a. **С Партнерами , потому что**_____
_____

b. **Один, потому что**_____
_____

c. **Нет предпочтения**

13. Как вы находите партнеров для работы?

a. **Назначенный профессором**

b. **Работа с друзьями**

c. **Использование социальных сетей**

d. **Рекомендуется другом или профессором**

e. **Другое** _____

14. НА КАКИХ ИНТЕРНЕТ-ПЛАТФОРМАХ ВЫ ПУБЛИКУЕТЕСЬ? (МОЖНО ОТМЕТИТЬ НЕСКОЛЬКО ВАРИАНТОВ)

a. **E-library**

b. **Lambert publisher**

c. **Scopus**

d. **Web of Science**

e. **Social Science Research Network (SSRN)**

f. **Gutenberg**

g. **другие (допишите)**

_____

_____

h. **ни на каких**

i. **я не знаю о существовании таких платформ**

15. **ЧТО ВАС ПРИВЛЕКАЕТ В ЛЮБОЙ ИЗ ПЕРЕЧИСЛЕННЫХ ВЫШЕ ИЗВЕСТНЫХ ВАМ ПЛАТФОРМ? (без вариантов ответа; допишите)**

_____

_____

16. **ЕСЛИ ВЫ НЕ ПОМЕЩАЕТЕ СВОИ ПУБЛИКАЦИИ НА ИНТЕРНЕТЕ, ПО КАКИМ ПРИЧИНАМ?? (можно отметить несколько вариантов)**

a. **Я публикую свои работы в интернете**

b. **необходимость переводить научную работу на иностранный язык (для зарубежных веб-платформ)**

c. **возможность нарушения авторского права**

d. **публикация занимает много времени**

e. **затраты времени на размещение материала**

f. **неуверенность в качестве выполненной работы**

g. **не знаю как это сделать**

h. **нечего публиковать, нет работ/идей**

i. **другое (допишите)**

_____

_____

17. **КАКИЕ ПЛАТФОРМЫ ВЫ ИСПОЛЬЗУЕТЕ ? (можно отметить несколько вариантов)**

a. **Academia.edu**

b. **Finlabwiki.org**

c. **Mendeley.com**

d. **Researchgate.net**

e. **Linkedin.com**

f. **Facebook**

g. **Kontakte**

h. **Skype**

i. **SSRN**

j. **Gutenberg**

k. **Microsoft SharePoint**

l. **Google Docs**

m. **Open Science Framework**

n. **Quizlet.com**

никакие не знаю

18. ЧТО ДЛЯ ВАС МОЖЕТ ЯВЛЯТЬСЯ ПРИОРИТЕТОМ ДЛЯ ПУБЛИКАЦИИ НА ВЕБ-ПЛАТФОРМАХ? (можно отметить несколько вариантов)

a. техническая доступность публикации научной работы на платформе

b. отсутствие платы за публикацию работы

c. подходящая тематика

d. открытый доступ к научным трудам коллег

e. надежность сохранения публикаций

f. другое(допишите)_____
_____

Финансовый университет совместно с институтом Worcester Polytechnic Institute (WPI) создает площадку для распространения научного знания, место, где студенты и ученые могли бы обмениваться своими научные работами

(статьями, монографиями, книгами), находить коллег по интересам, иметь возможность общаться и создавать совместные проекты. Данная платформа должна дать возможность мгновенной связи с коллегами по всему миру, следить за новостями в своих дисциплинах и напрямую связываться с ведущими учеными, находить резидентов, научных руководителей и соавторов для совместной работы.

19. КАКИЕ ХАРАКТЕРИСТИКИ И ВОЗМОЖНОСТИ САЙТА, ПО ВАШЕМУ МНЕНИЮ, НЕОБХОДИМЫ ДЛЯ ДАННОЙ ПЛАТФОРМЫ? ОТМЕТЬТЕ ПО 5-БАЛЬНОЙ ШКАЛЕ НЕОБХОДИМОСТЬ ДАННЫХ ОПЦИЙ, ГДЕ 1 – НИЗШАЯ СТЕПЕНЬ, А5 – ВЫСШАЯ СТЕПЕНЬ НЕОБХОДИМОСТИ . (ответы даются по каждой строке)

Возможность общения (внутренний чат)					
Возможность публикации своих работ					
редактирования своих работ					
Рецензирование работ других участников					
Создание “тегов” публикаций					
Возможность “подписки” на публикации по интересующей Вас дисциплине					
Возможность поиска соавтора для совместной научной работы					
Поиск авторов для совместной публикации					
Перечень конференции и иных научных мероприятий					
Возможность обмениваться файлами с коллегами…..					

Возможность иметь личный профиль					
Временная шкала или прогресс-бар вашей работы					
Другое (допишите)_____					